

Fig. 1

## Seed Handling System

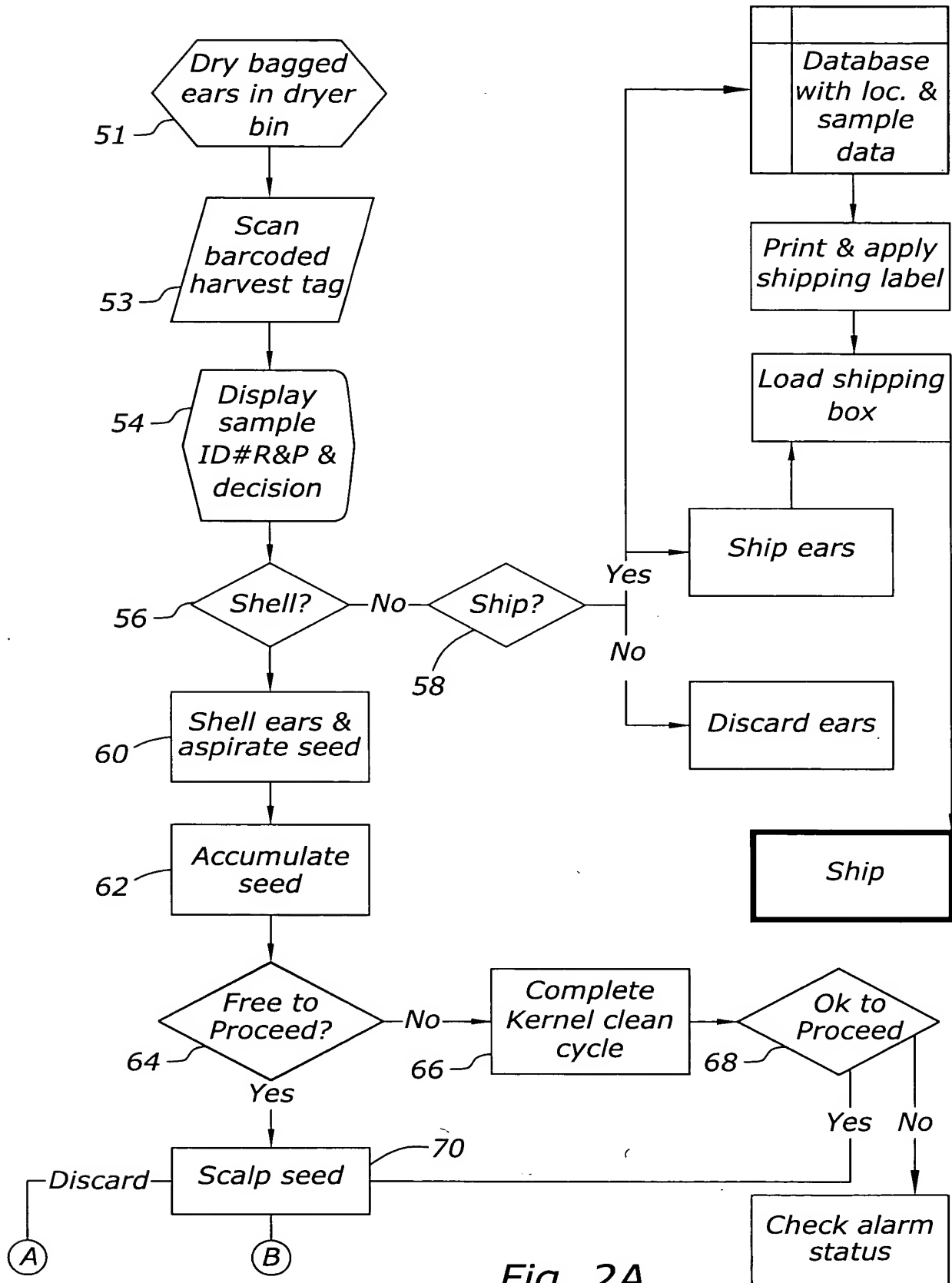


Fig. 2A

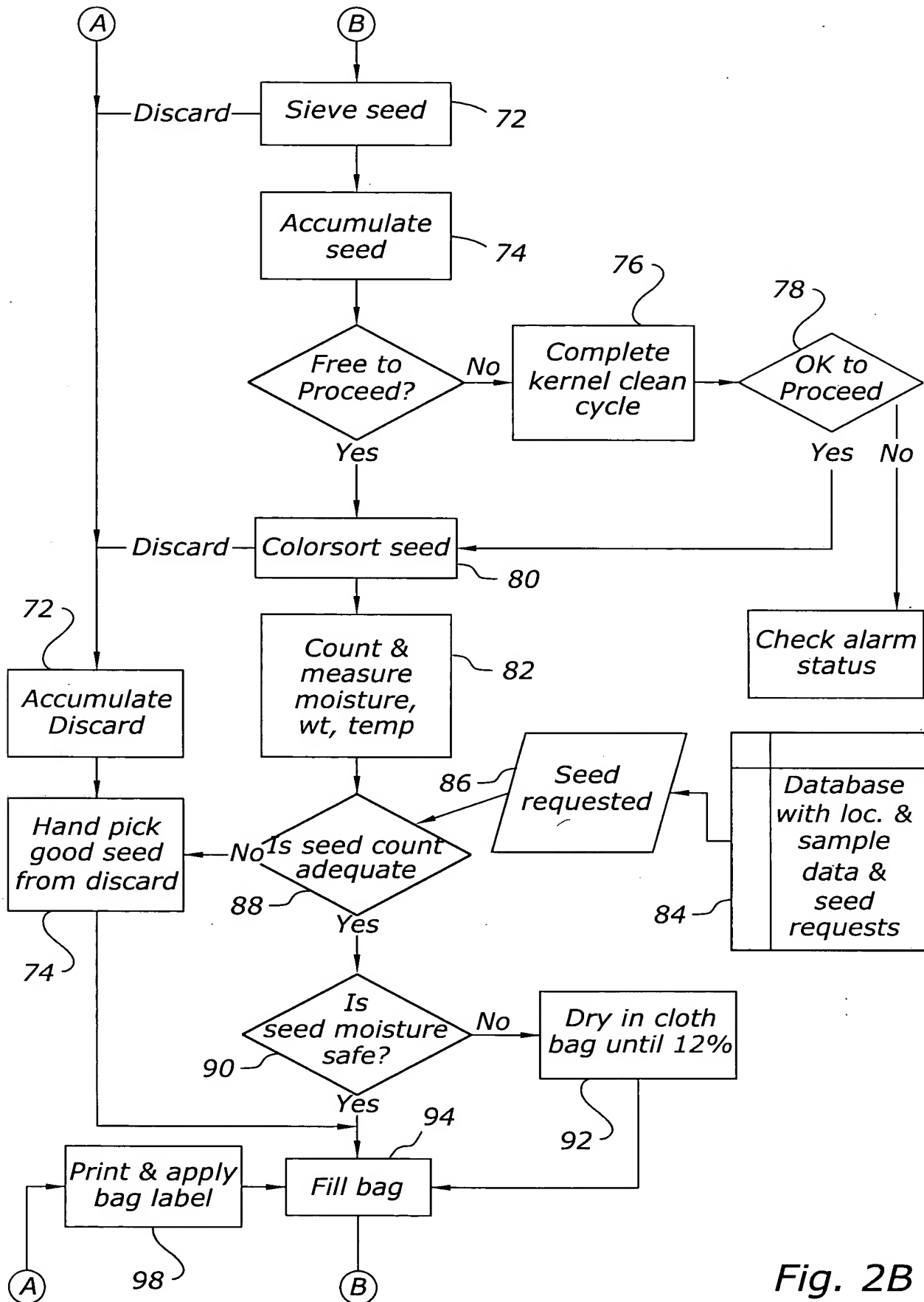
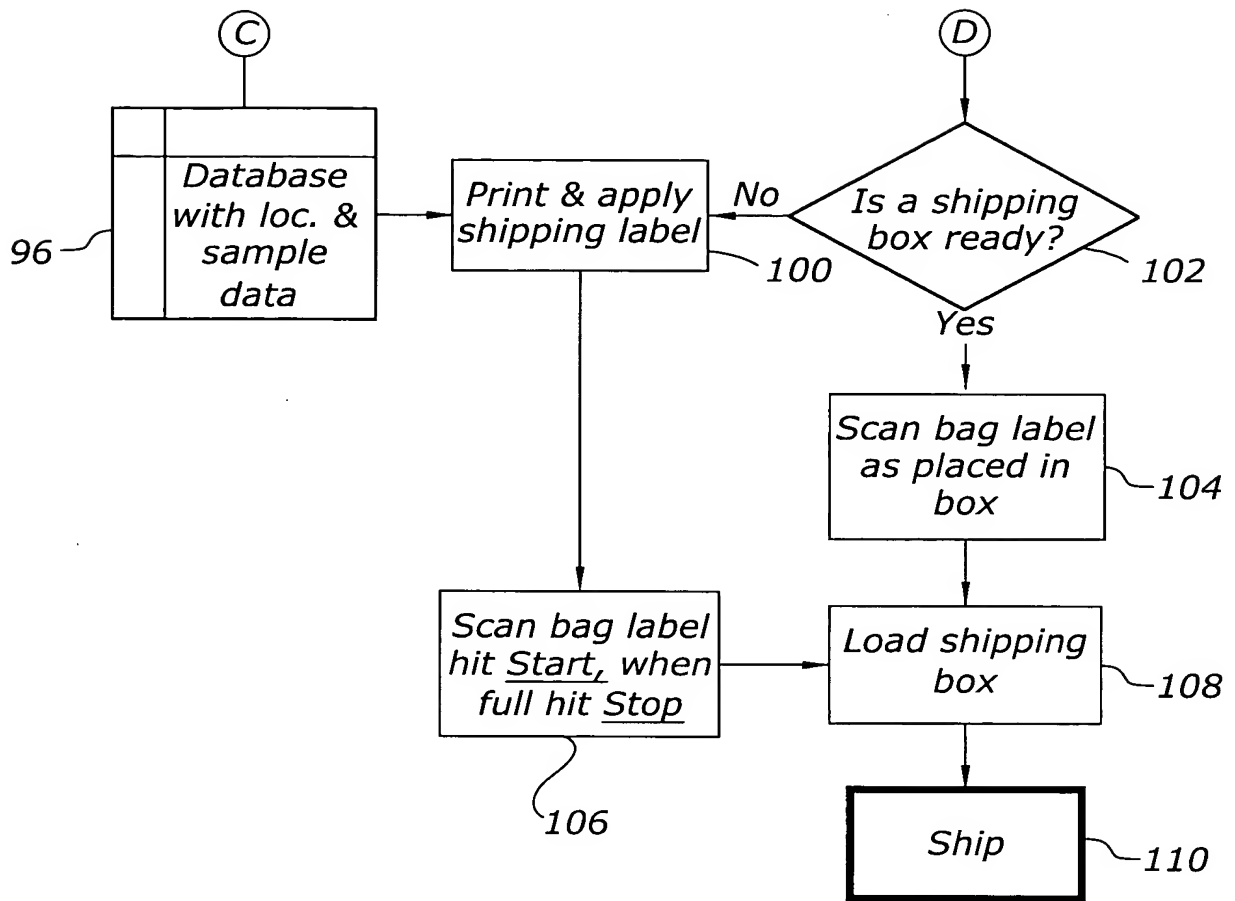


Fig. 2B



*Note-Boxes will be sent to the originating station for an experiment. Eventually, seed samples may all be sent to a central facility.*

*Fig. 2C*

## INFORMATION FLOW

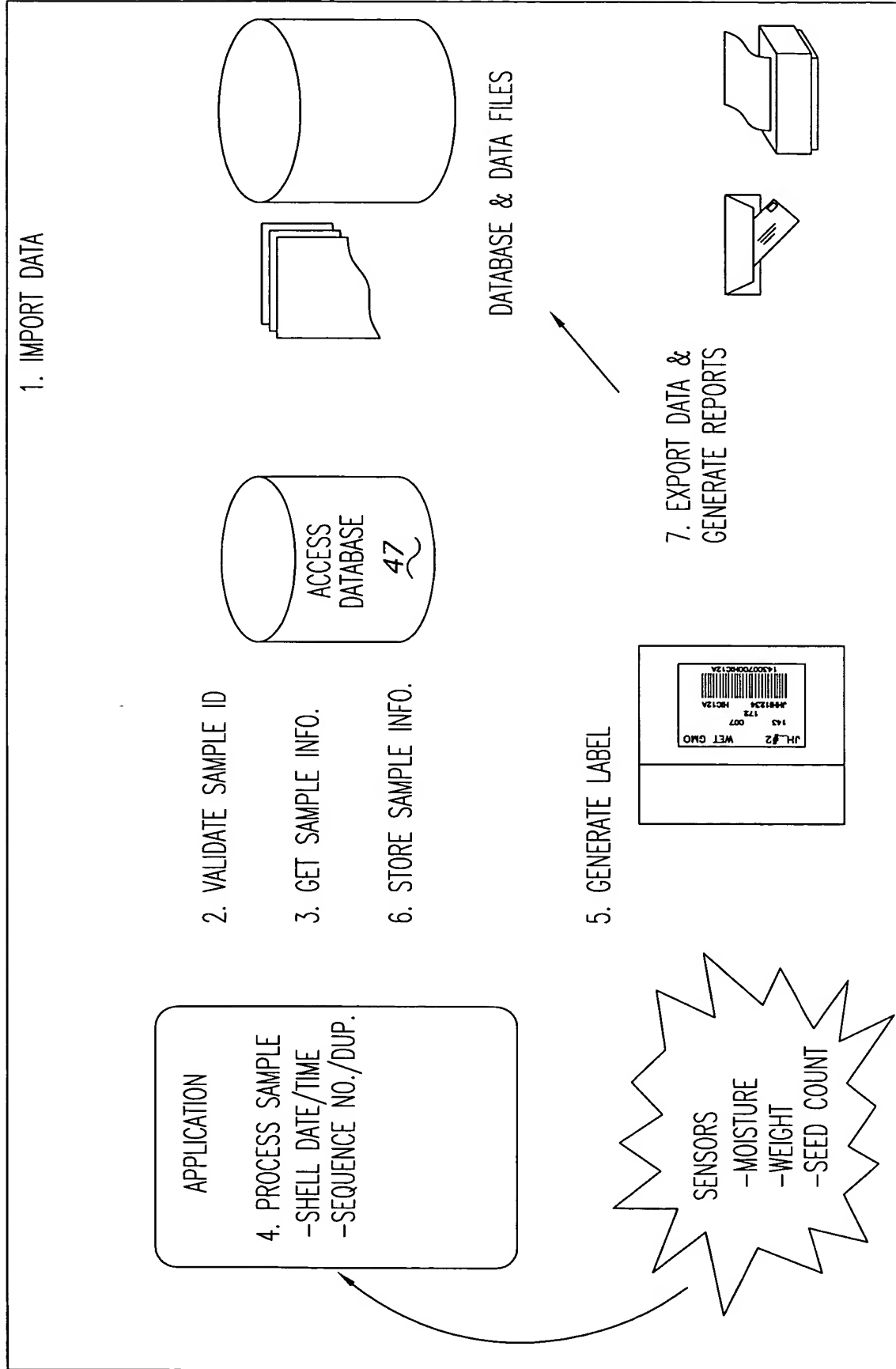
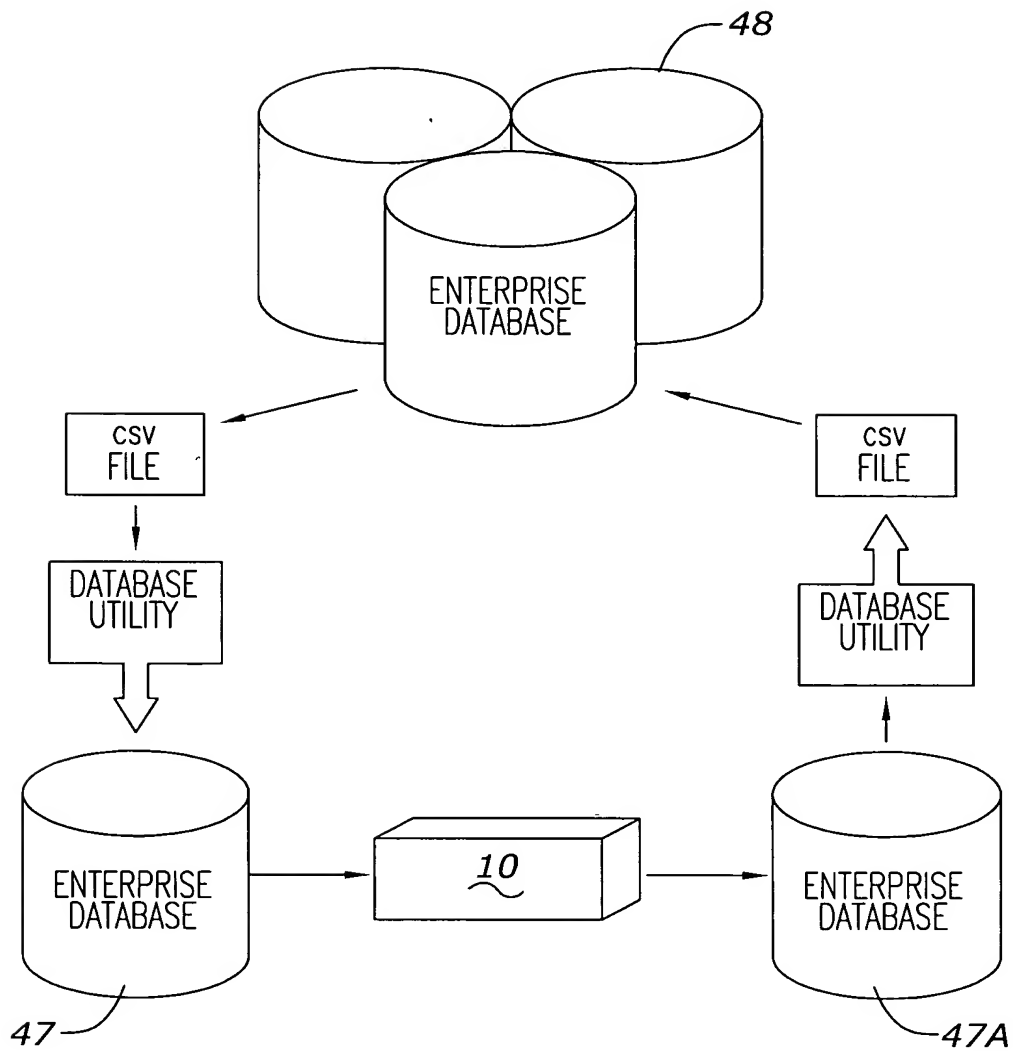
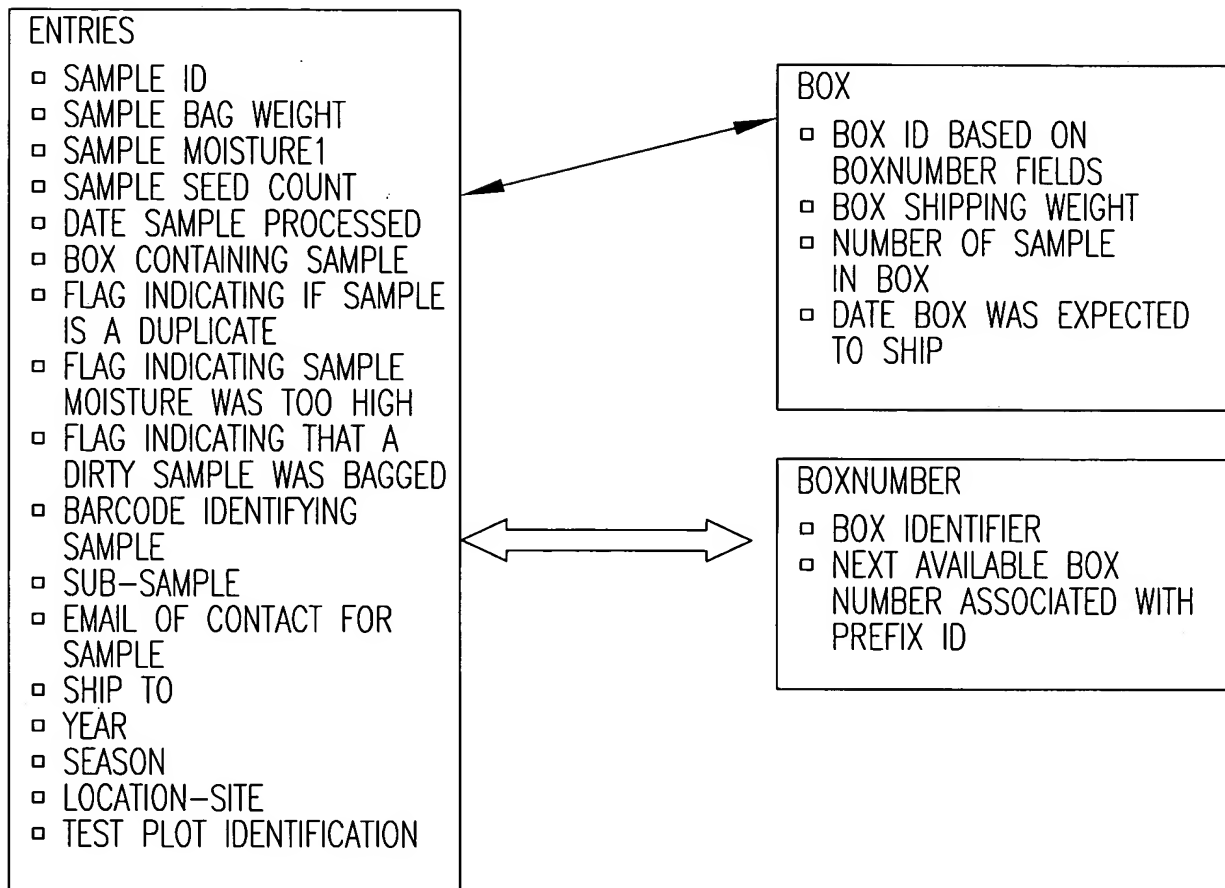


Fig. 3A

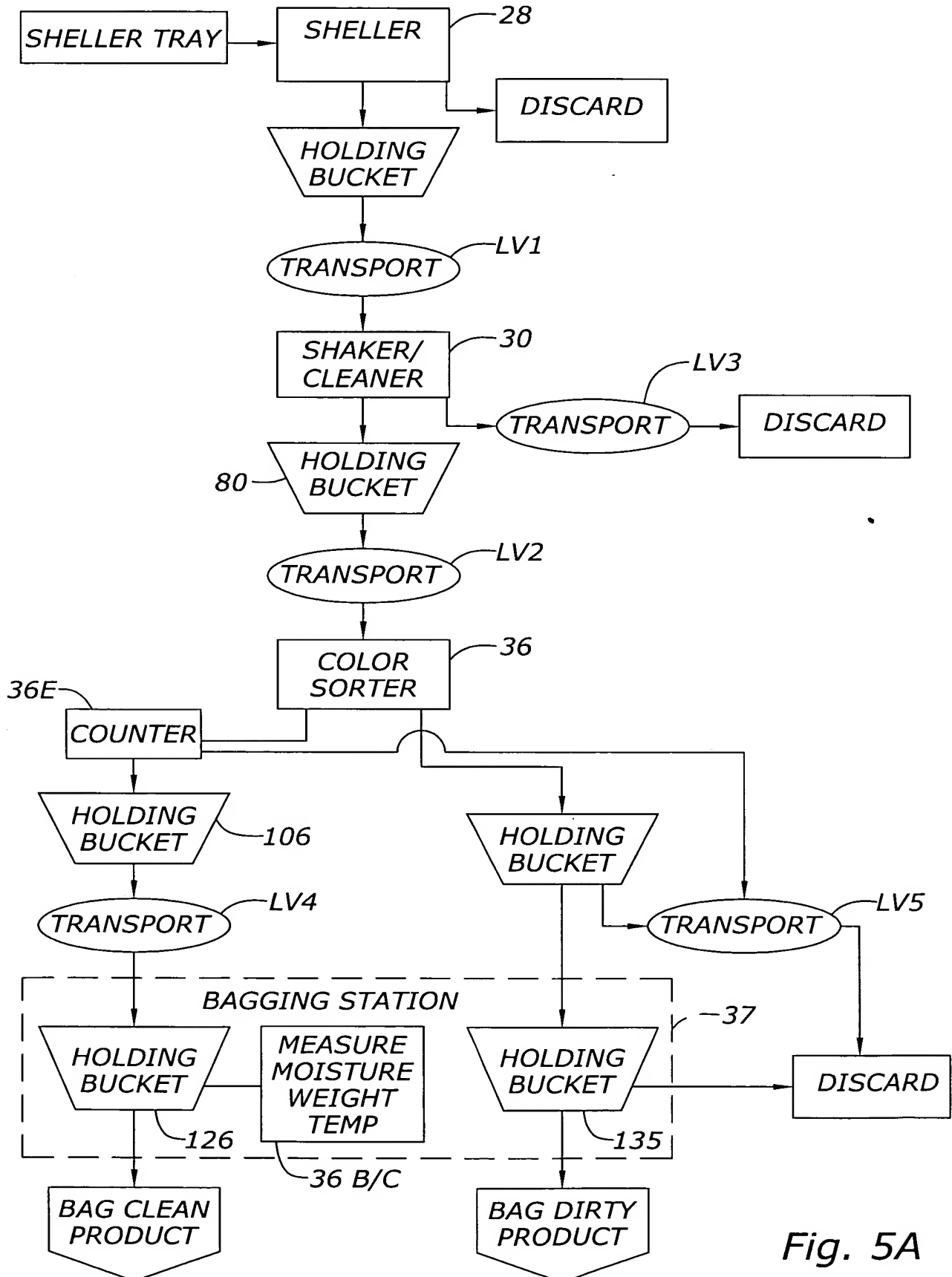


*Fig. 3B*



*Fig. 4*

## MECHANICAL PROCESS FLOW



*Fig. 5A*



## INFORMATION PROCESS FLOW

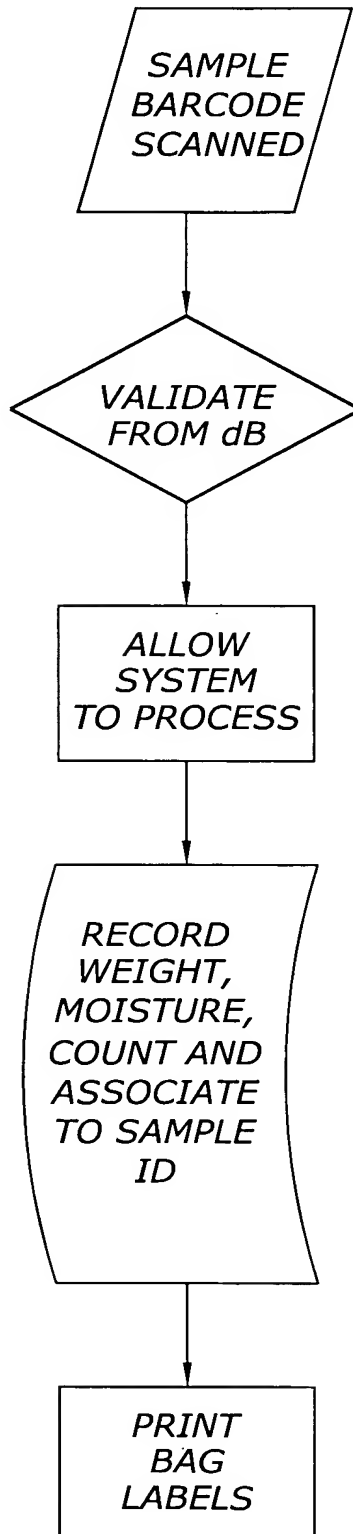


Fig. 5B

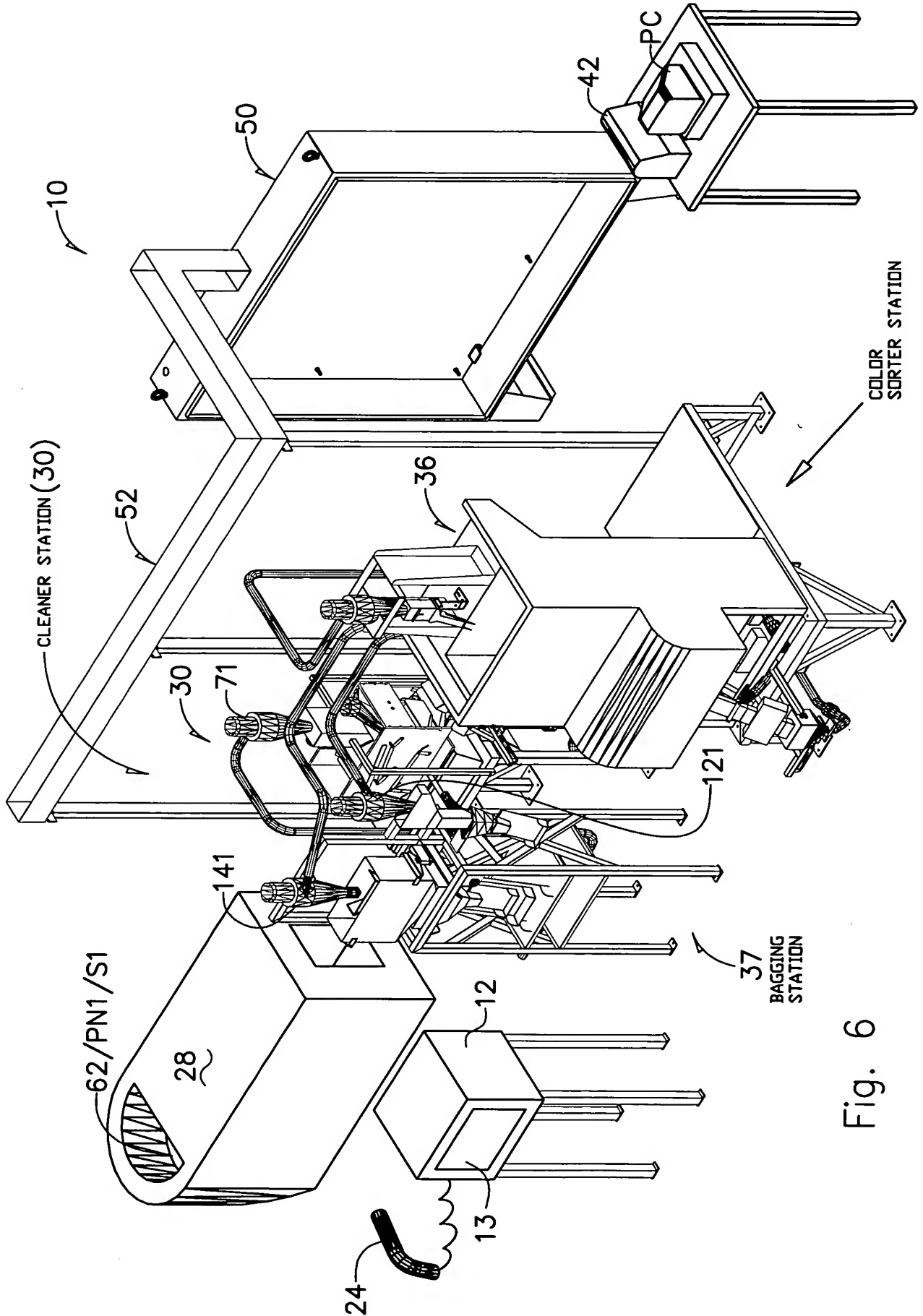
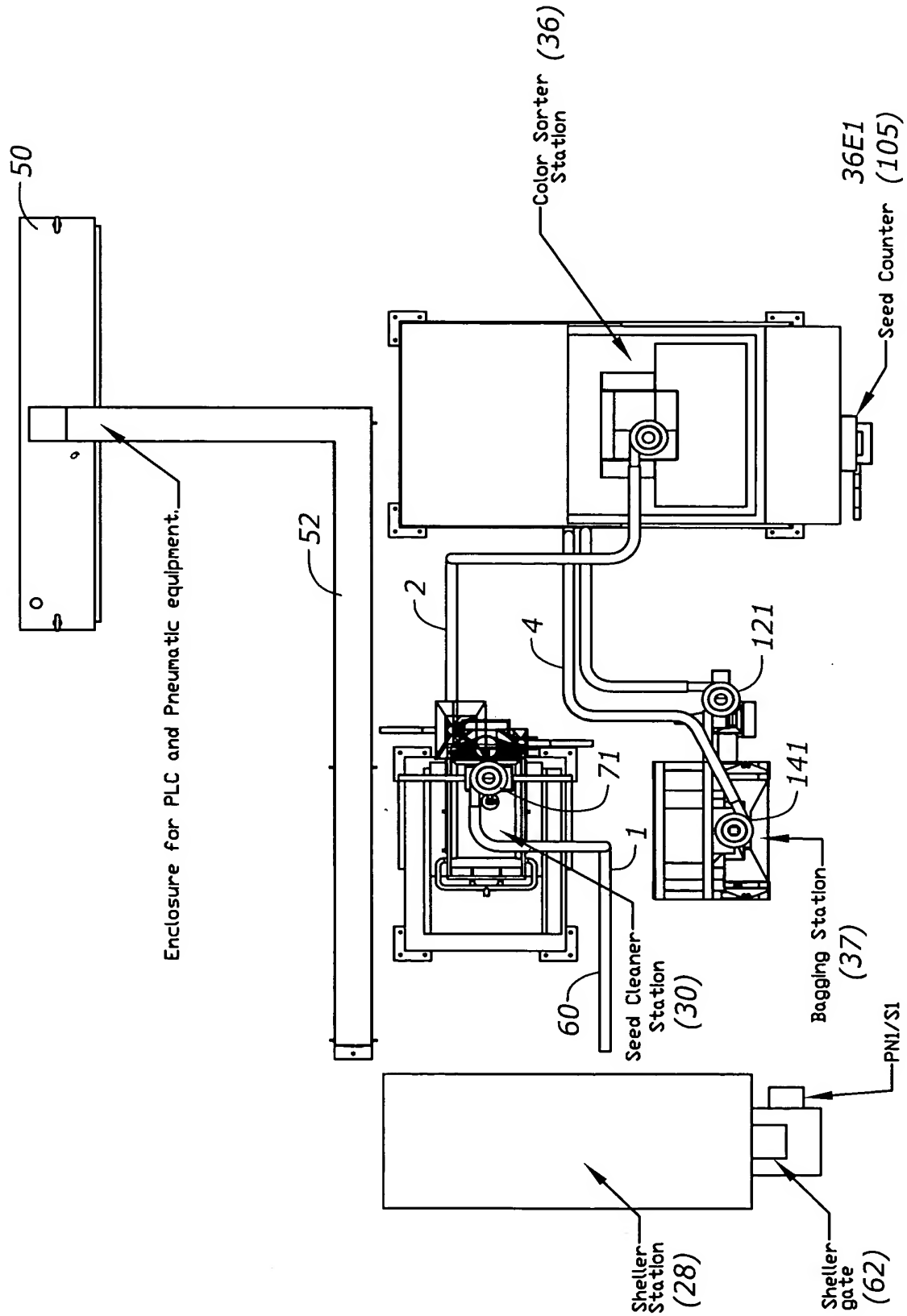


Fig. 6



**Fig. 7A**

NOTE: Samples are transported from one station to the next by means of line vacs.

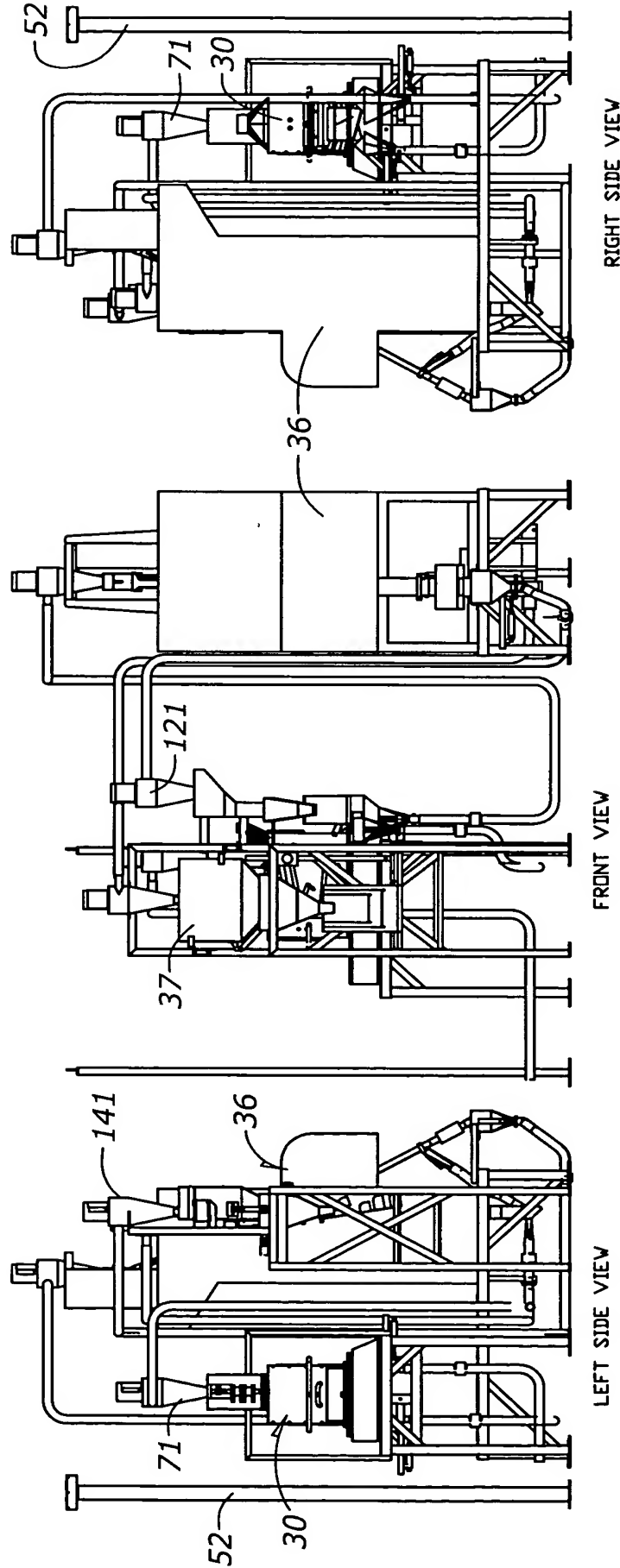
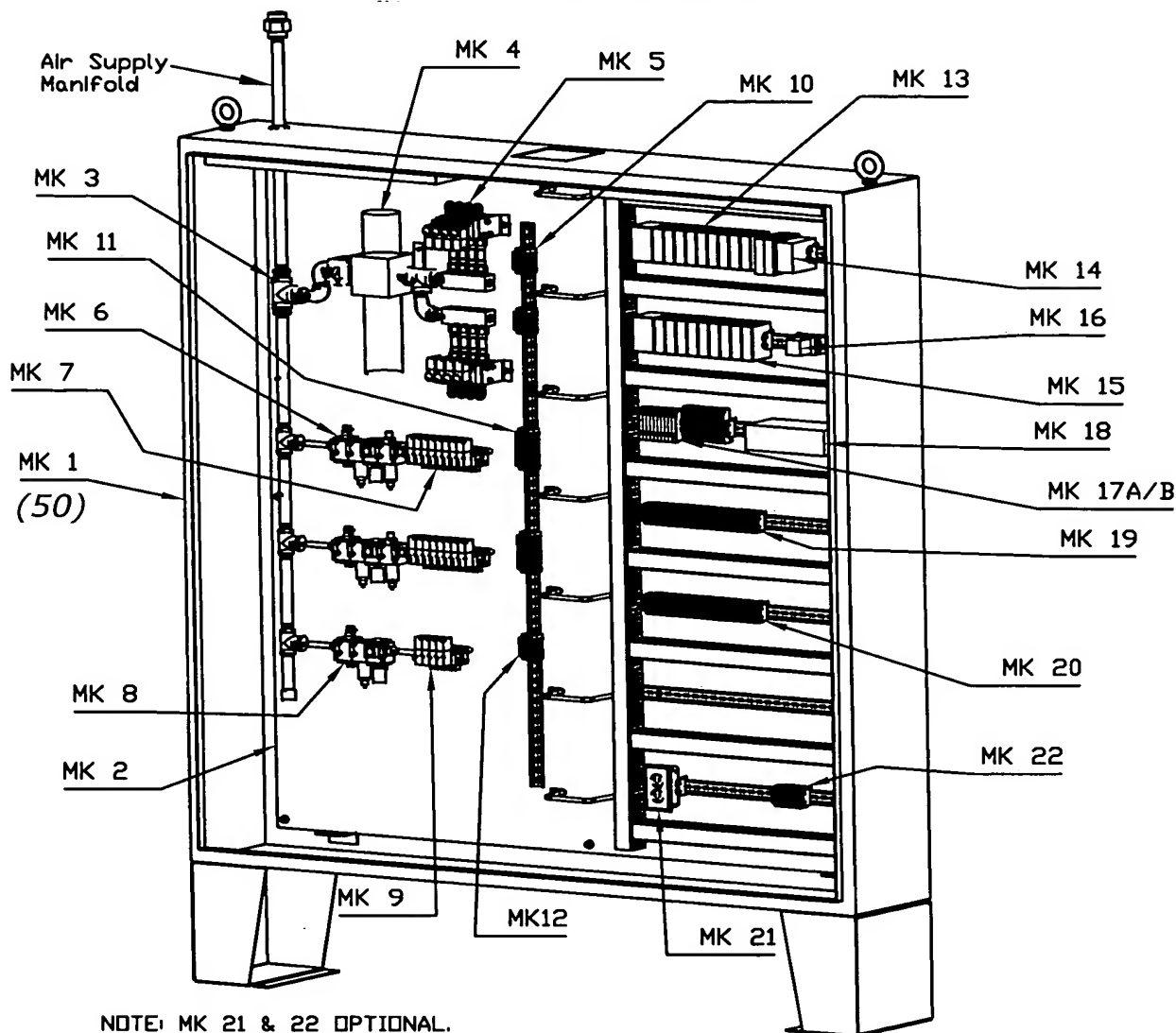


Fig. 7D

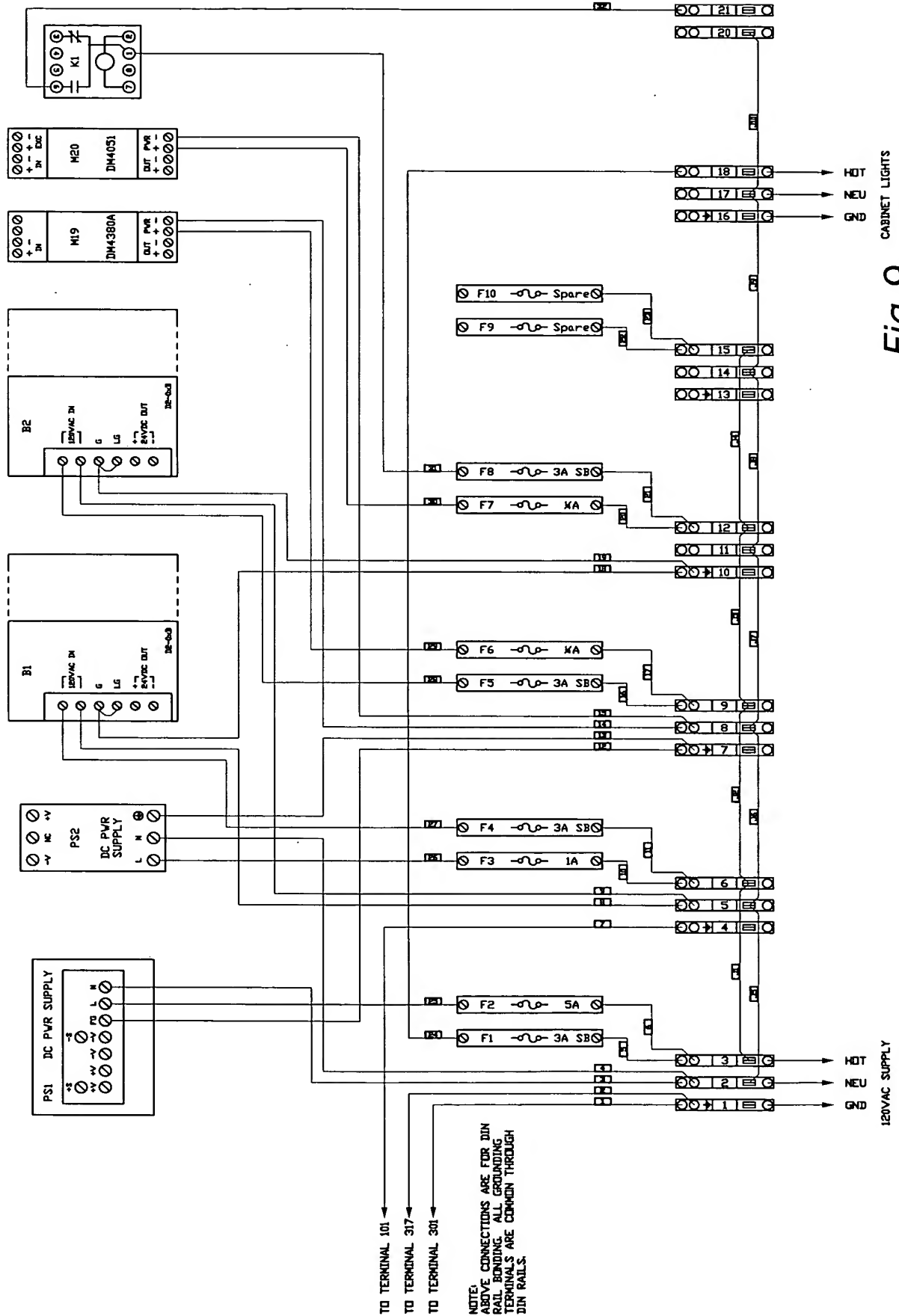
Fig. 7C

Fig. 7B

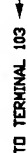


MK	PI#	DESCRIPTION
23	012890	CONDENSATE DRAIN SYSTEM
22	012892	COUNTER WIRING BLOCK
21	012891	SERVICE OUTLET
20	012891	WIRING BLOCK SENSOR INPUT TERMINAL BLOCK
19	012891	WIRING BLOCK OUTPUT TERMINAL
18	012891	POWER SUPPLY PS1
17	012892	(A/B) FUSE BLOCKS
16	012891	RELAY & FUSE SHAKER RELAY K1
15	012892	I/O BASE 2
14	012892	ANALOG SIGNAL MODULES PS2 ANALOG INPUT
13	012891	I/O BASE 1
12	012891	AIR JET VALVE ASSEMBLY WIRING BLOCK
11	012891	PNEUMATIC CYLINDER VALVE ASSEMBLY WIRING BLOCK
10	012891	AIR TRANSPORT VALVE ASSEMBLY WIRING BLOCK
9	012890	AIR JET ASSEMBLY
8	012890	AIR JET REGULATOR/FILTER
7	012890	PNEUMATIC CYLINDER VALVE ASSEMBLY
6	012889	PNEUMATIC CYLINDER REGULATOR/FILTER/OILER
5	012889	AIR TRANSPORT VALVE ASSEMBLY
4	012889	AIR TRANSPORT REGULATOR
3	012889	AIR DISTRIBUTION MANIFOLD
2	012888	PANEL
1	012888	ENCLOSURE

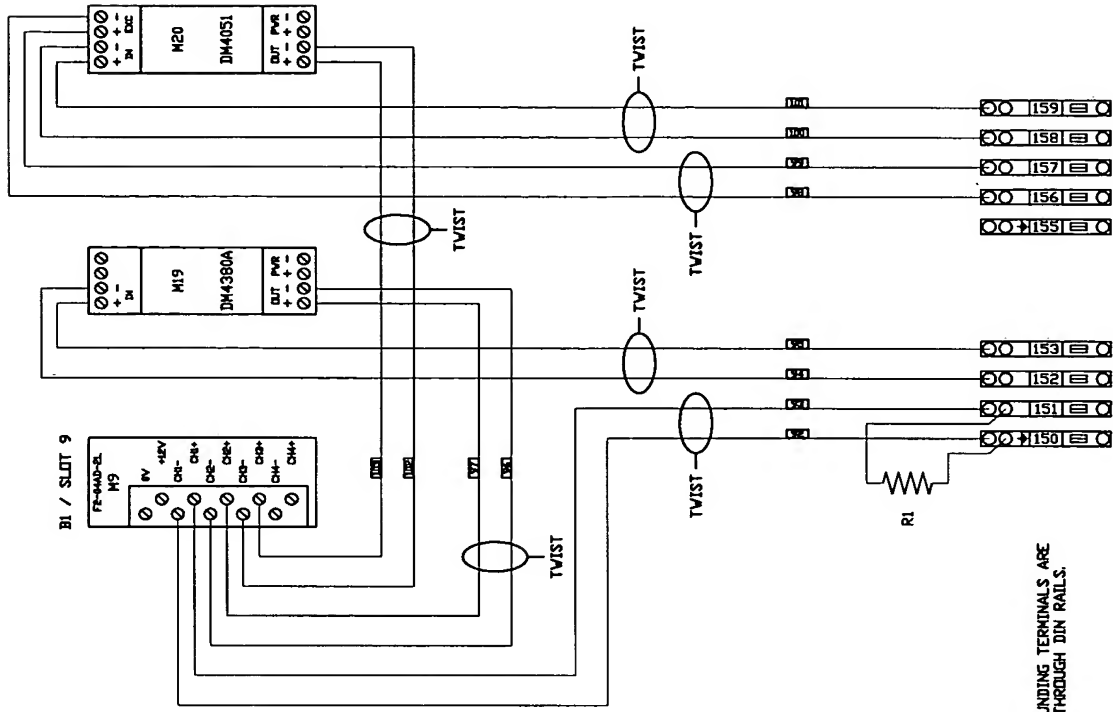
Fig. 8



**Fig. 9**

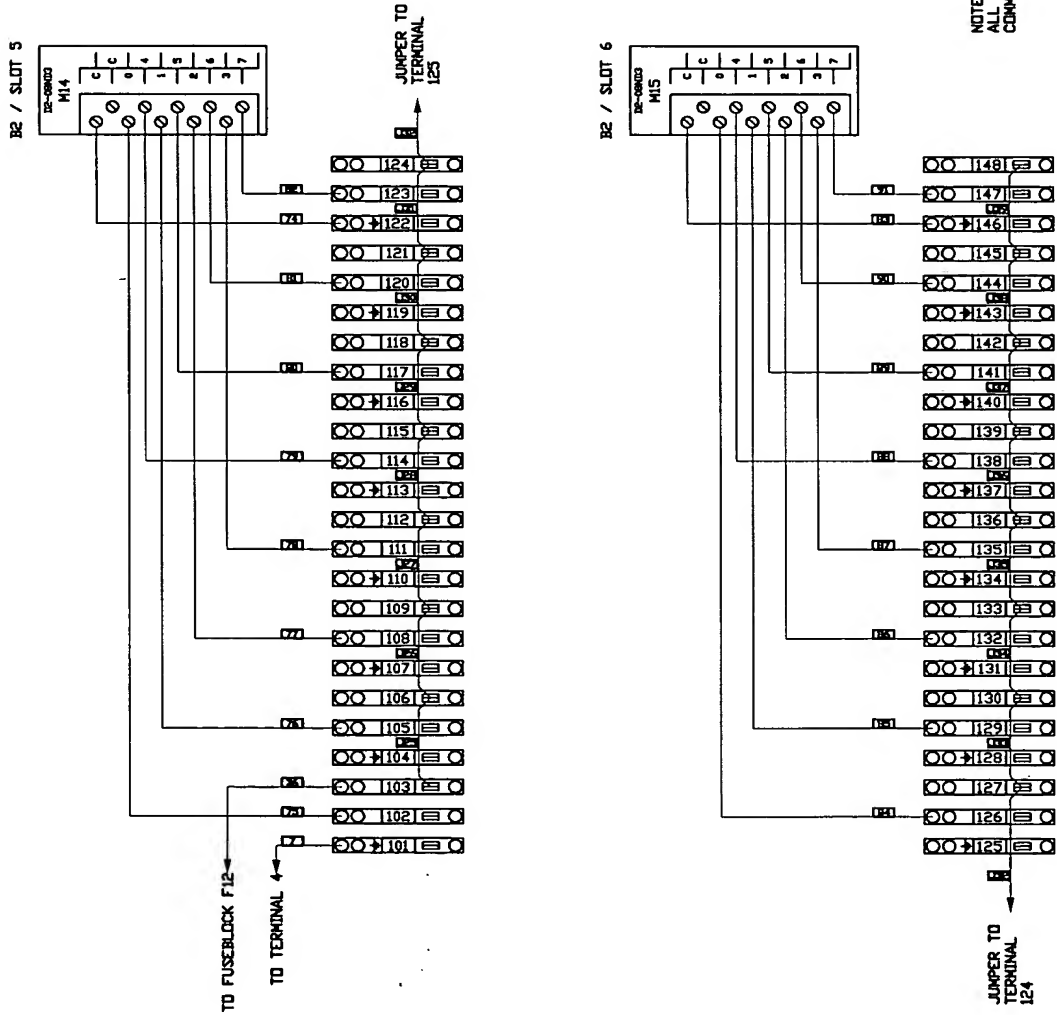


**Fig. 10**

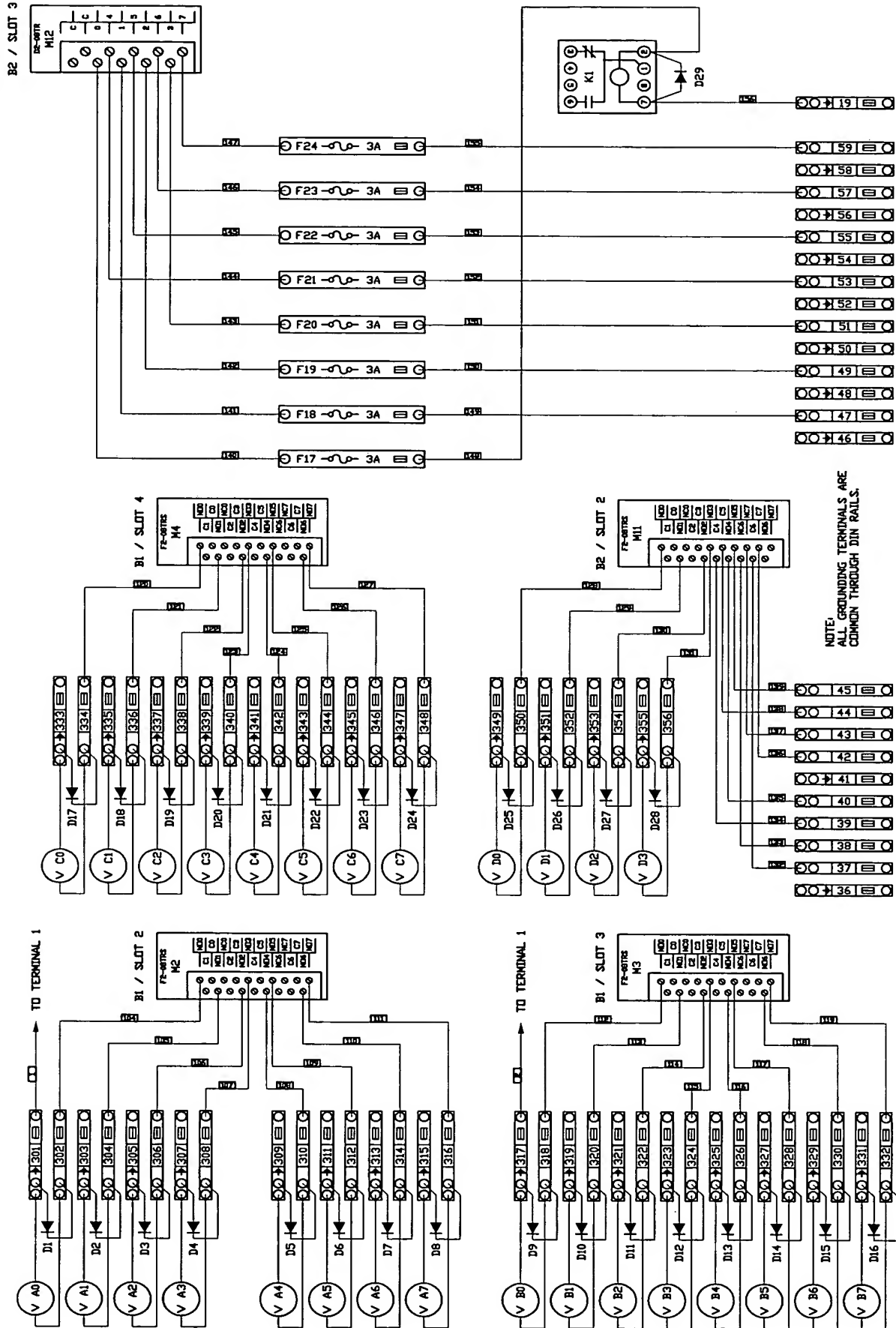


NOTE:  
ALL GROUNDING TERMINALS ARE  
COMMON THROUGH DIN RAILS.

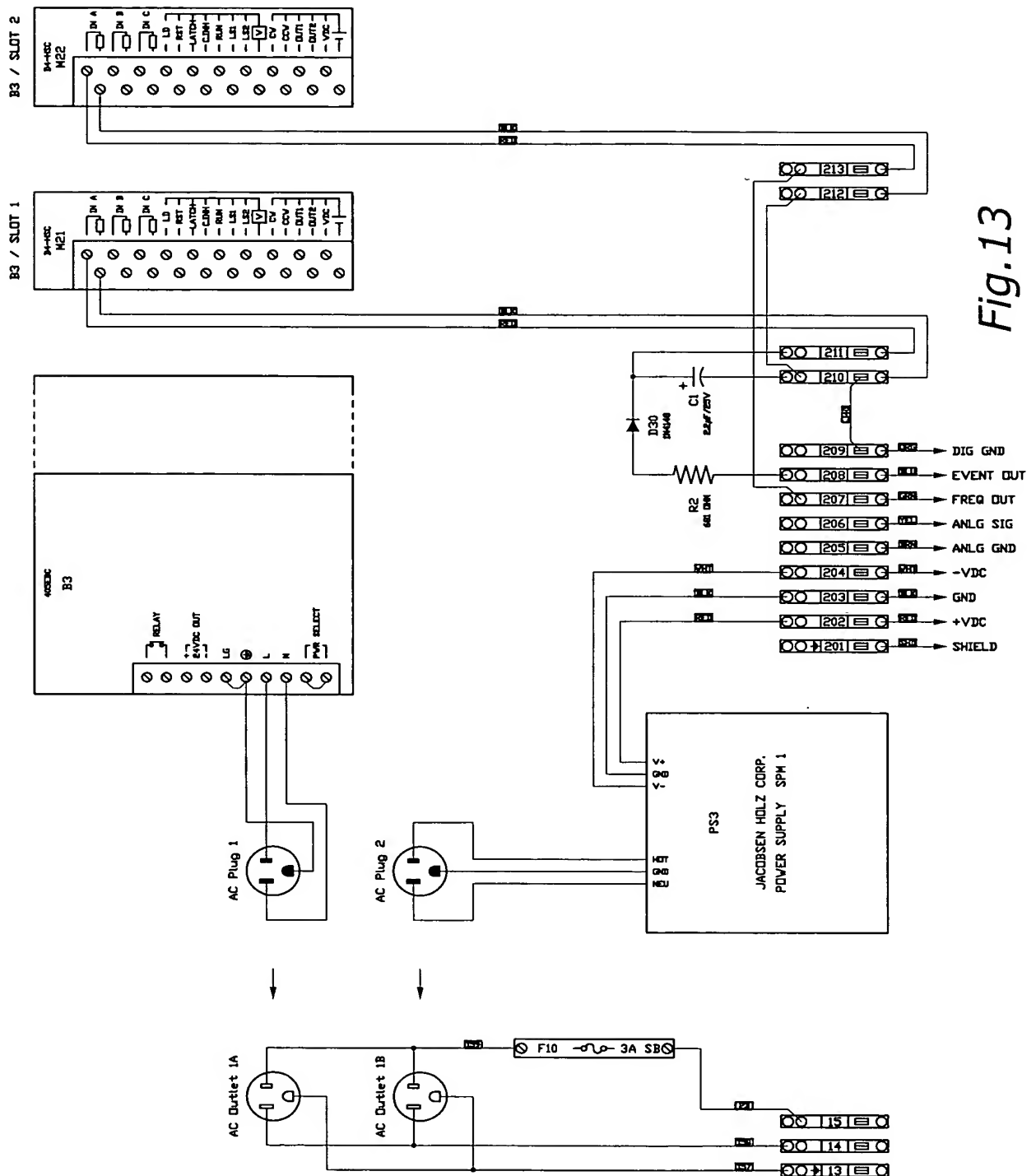
**Fig. 11**







**Fig. 12**



**Fig.13**

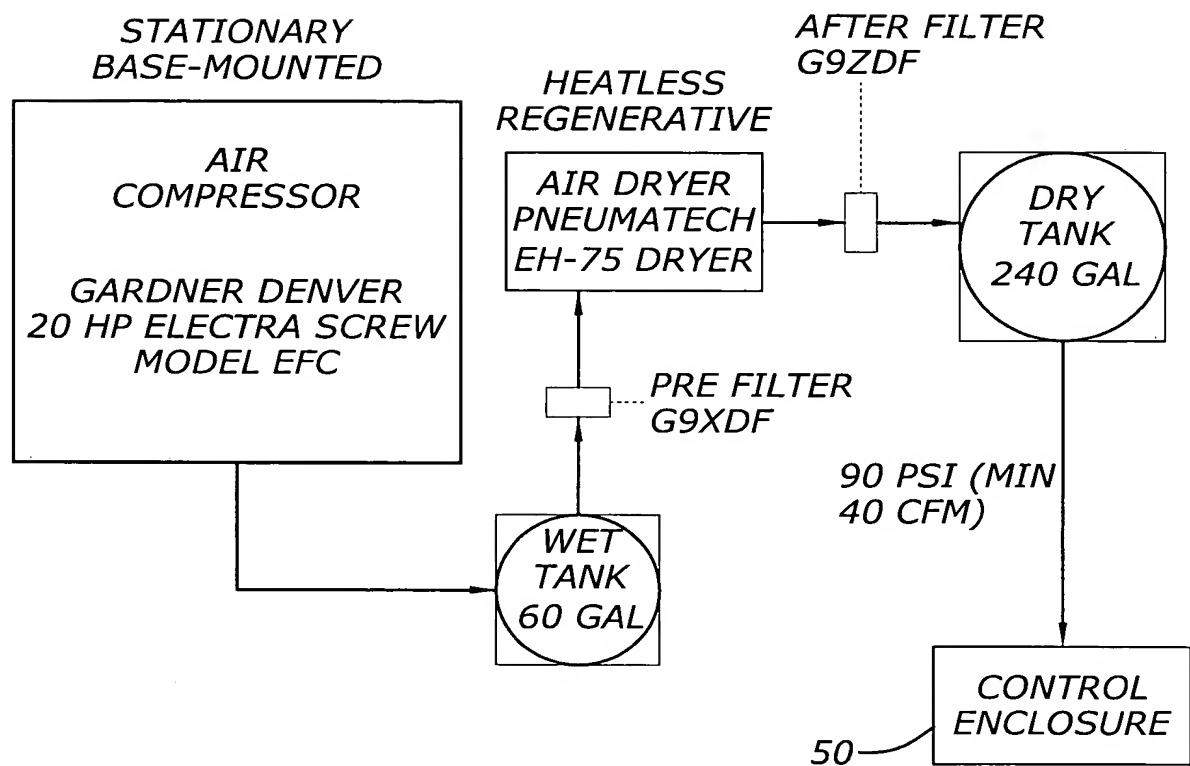


Fig. 14

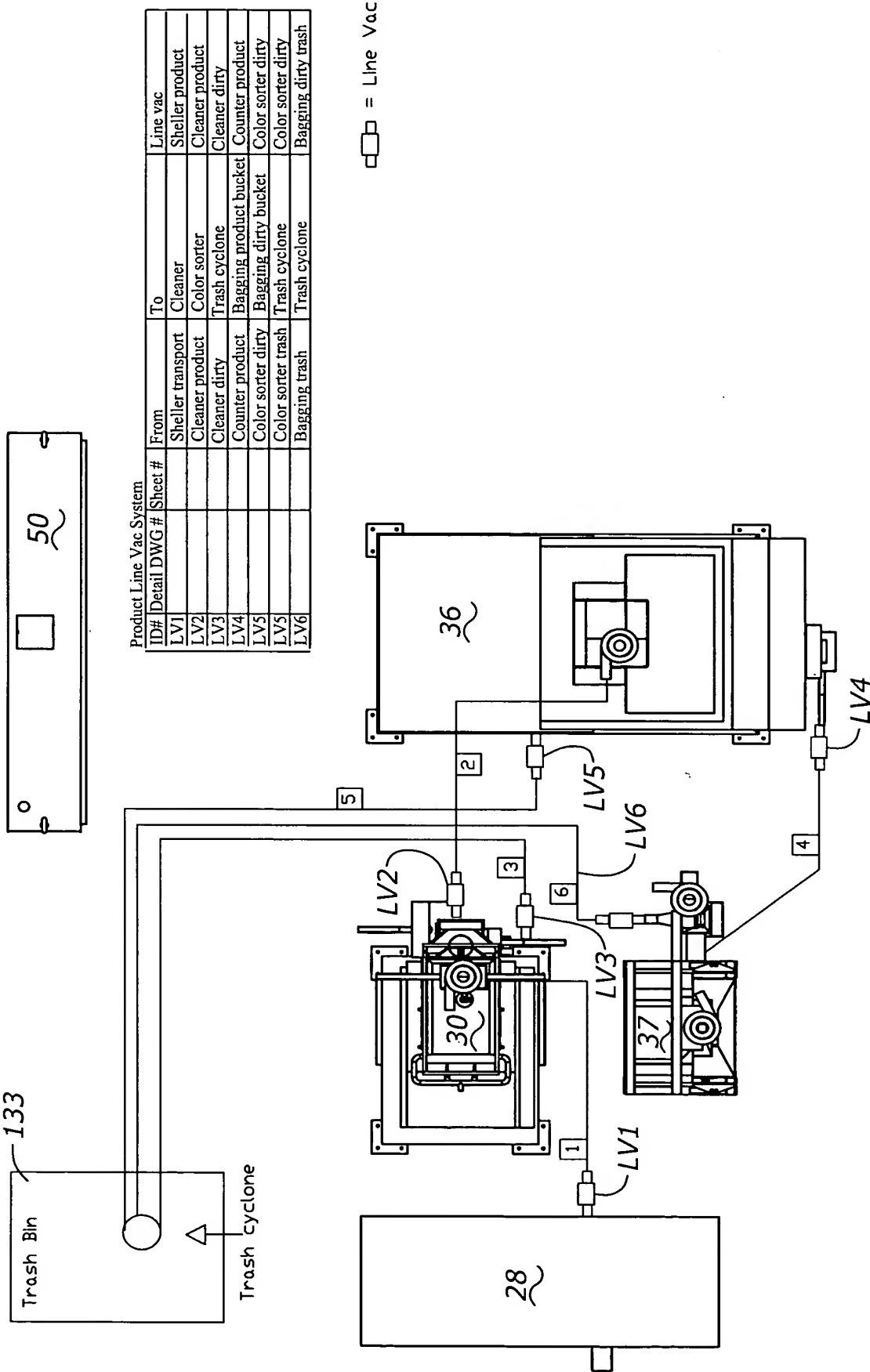


Fig. 15

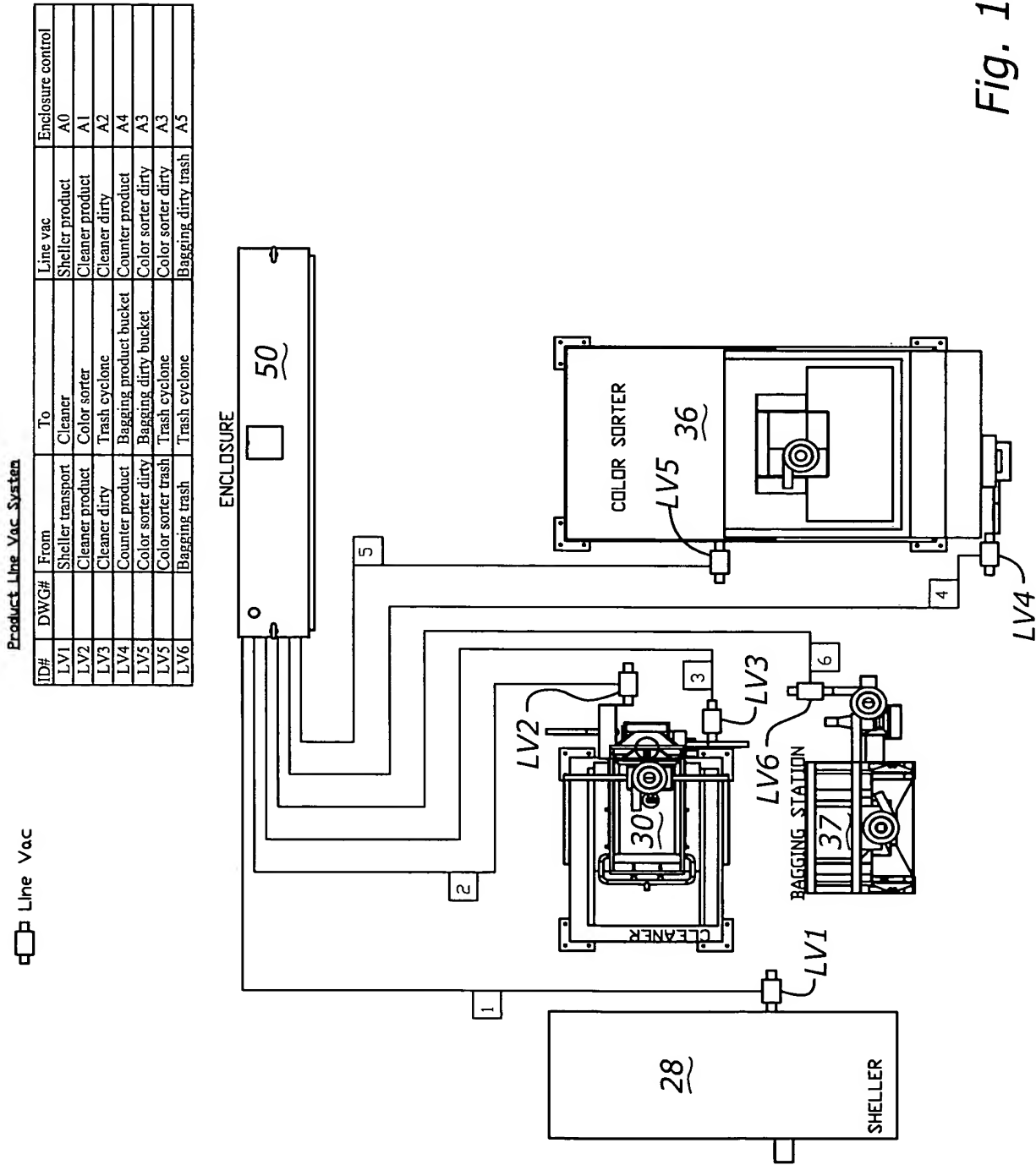
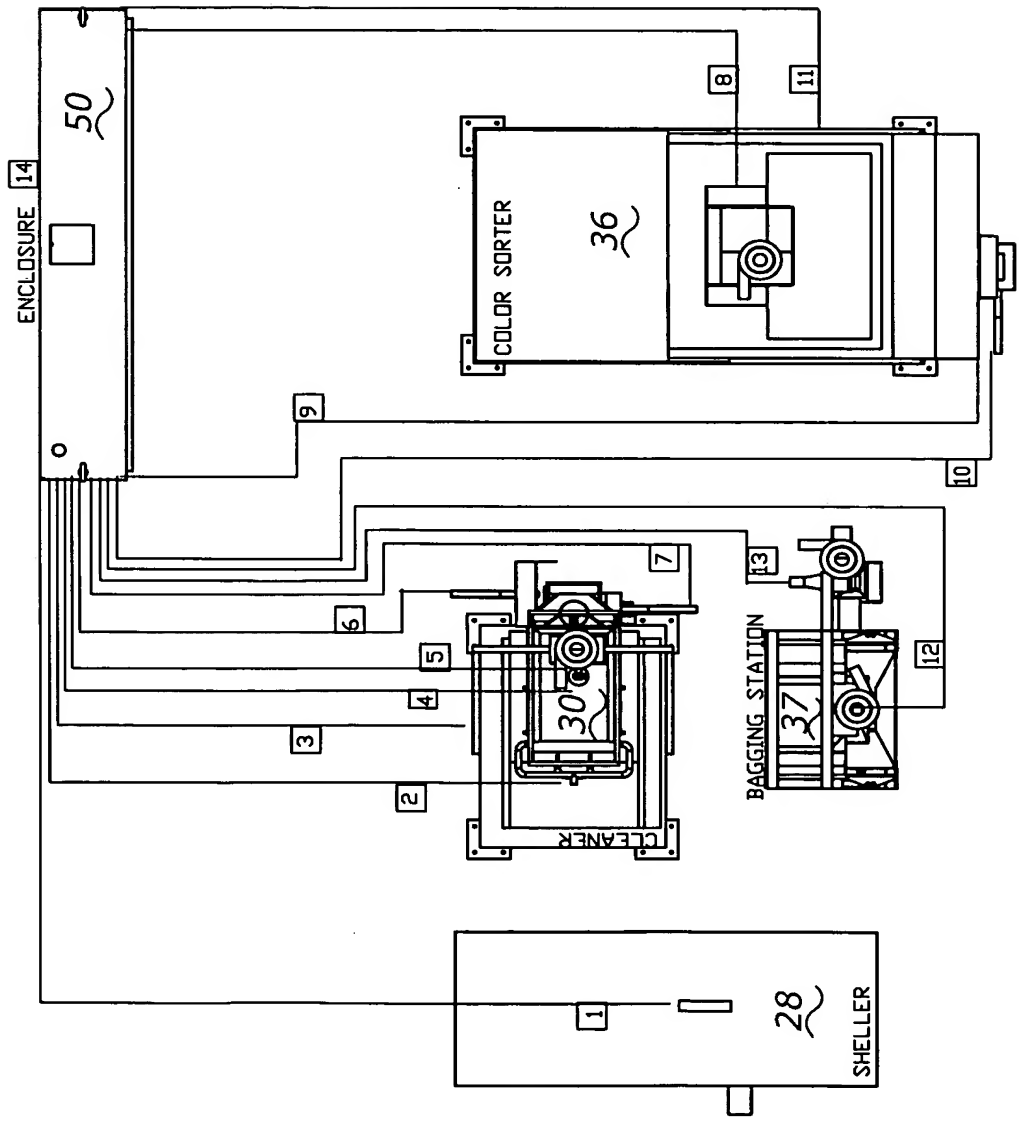


Fig. 16

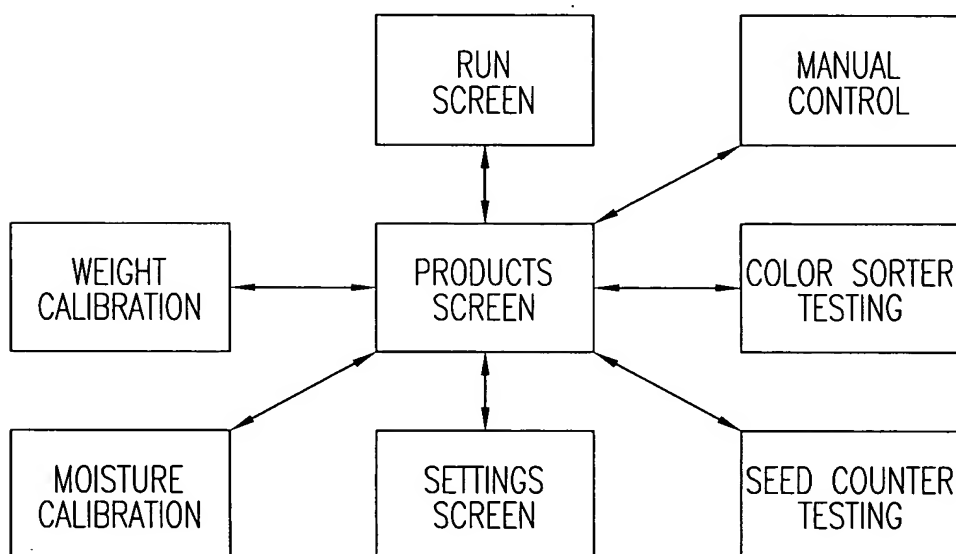


Air cylinder lines

ID #	Description	To
PN1	Sheller input gate	Enclosure - B0
PN2	Cleaner lower tray	Enclosure - B4
PN3	Cleaner upper tray	Enclosure - B3
PN4	Cleaner bucket stage 1	Enclosure - B1
PN5	Cleaner bucket stage 2	Enclosure - B2
PN6	Cleaner product bucket	Enclosure - B5
PN7	Cleaner dirty bucket	Enclosure - B6
PN8	Sorter bucket	Enclosure - C4
PN9	Sorter diverter	Enclosure - C0
PN10	Counter bucket	Enclosure - B7
PN11	Sorter swap valve	Enclosure - C1
PN12	Bag product bucket	Enclosure - C2
PN13	Bag dirty bucket	Enclosure - C3
PN14	Enclosure	-----

Fig. 17

## ***RUNTIME OPERATIONAL HIERARCHY***



***Fig. 18***

PRODUCT SELECTION

ISO - 7 OZ.

ISO - 12 OZ.

ISO - ALL

R2

GN - SINGLE EAR

CN - SINGLE EAR

ISO - 7 OZ.

CURRENT PRODUCT SELECTED

RENAME

SETTINGS

MANUAL CONTROL

CALIBRATE WEIGHT

CALIBRATE MOISTURE

COUNTER SETUP

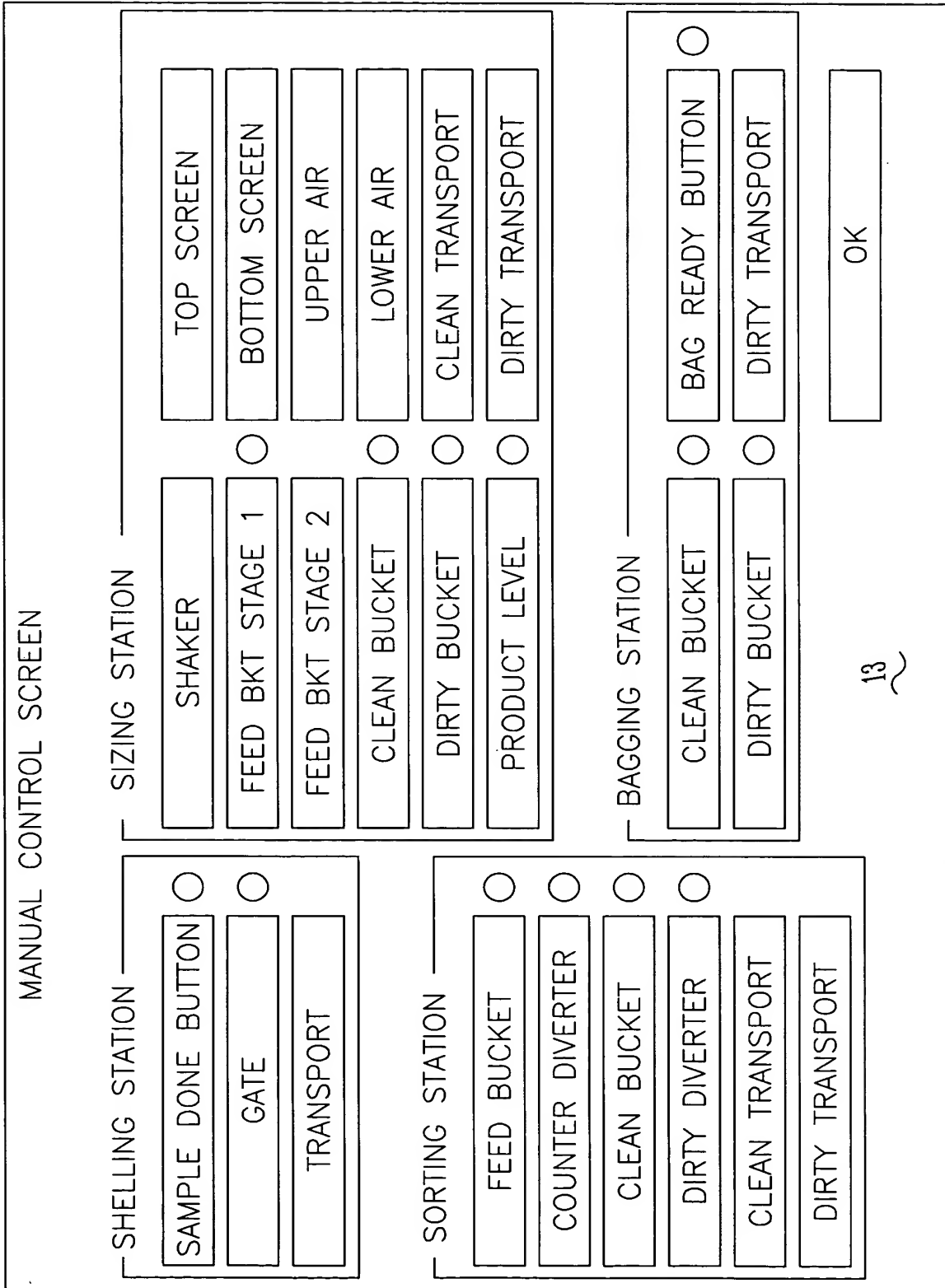
SORTER TEST

UNLOAD SYSTEM

OK

Fig. 19A





**Fig. 19B**

SYSTEM SETTINGS		
STATION OPERATION TIMES		AIR TRANSPORT TIMES
SHELLING	5.0	SHELLING 8.0
SIZING	4.0	SIZING CLEAN 10.0
SORTING	7.5	SIZING DIRTY 3.0
SHAKER START DELAY	20.0	SORTING CLEAN 9.0
		SORTING DIRTY 3.0
		BAGGING DIRTY 3.0
CONTINUOUS MODE		
<div>ISO - 7 OZ.</div> <div>13</div> <div>OK</div>		
CURRENT PRODUCT SELECTED		

**Fig. 19C**

X
14
SQUID - SEED QUALITY IMPROVEMENT DEVICE

PRODUCT 8  
 PRODUCT 4  
 ISO

PRODUCT 9  
 PRODUCT 5  
 R-2

PRODUCT 10  
 PRODUCT 6  
 HP INCREASES

PRODUCT 7  
 GENETIC SINGLE EAR

ISO

DATABASE  
 C:\SQUID\TEST.MDB

SETTINGS

TARGET SEED COUNT

ALL SEED ▾

DIRTY DESTINATION

SAVE DIRTY ▾

HIGH MOISTURE LIMIT (%)

6.9

HIGH MOISTURE LIMIT (%)

6.9

HIGH MOISTURE LIMIT (%)

6.9

HIGH MOISTURE LIMIT (%)

6.9

HIGH MOISTURE LIMIT (%)

6.9

GROUP BAGS BV: (BOX PREFIX)

REGISTRATION ▾

☐ ALLOW SAMPLES NOT FOUND TO PROCESS  
☐ ALLOW DUPLICATE SAMPLES TO PROCESS  
☐ DISCARD BY WEIGHT INSTEAD OF SEED COUNT

LABEL FORMATS
 

☐ BOX

C:\WNSHELLER\BOXLABEL.BTW ... SETUP

☐ BAG

C:\WNSHELLER\BAGLABEL.BTW ... SETUP

☐ DIRTY

C:\WNSHELLER\DIRTYLABEL.BTW ... SETUP

RUN

TODAY

PRODUCT SETUP

HARDWARE SETUP

*Fig. 20*

ISO SELLER

THINK & DO CONNECTION

OBJECT NAME

RUN TIME ID

RUNTIME CONTROL

☐ CE RUNTIME

☐ DESKTOP TUNTIME

TAG NAMES (CASE SENSITIVE)

SHELLER ID	BAGGING DONE FLAG	EMPTY BAG ID	BAG WEIGHT
STRSHELLER	FLGREAYTOBAG	STREMPYBAG	FPWEIGHTVALUE
BAG MOISTURE	SAVE BAG FLAG	EMPTY DONE FLAG	PRESIZING ID
FPMOISTUREVALUE	FLGSAVEBAG	FLGEMPTYBAGDONE	STRSIZERTOP
SIZING ID	CONNECTION LINK FLAG	SCANNED BAG ID	SCANNED BAG STATE
STRSIZER	FLAGWATCHDOG	STRSCANNED	NUMSTAGEDSAMPLESTATUS
SORTING ID	BAGGING ID	BAG COUNT	PRODUCT NAMES
STRSORTER	STRBAGGER	NUMFINALSEEDCOUNT	STRPRODUCTNAMES
PRODUCT MODES	CURRENT PRODUCT	TARGET COUNT	PRODUCT REFRESH FLAG
FLGPRODUCTMODES	CNTRPRODUCTINDEX	NUMTARGETCOUNT	FLGPRODUCTCHANGE

RUN

BOXES

PRODUCT SETUP

HW SETUP

*Fig. 21*

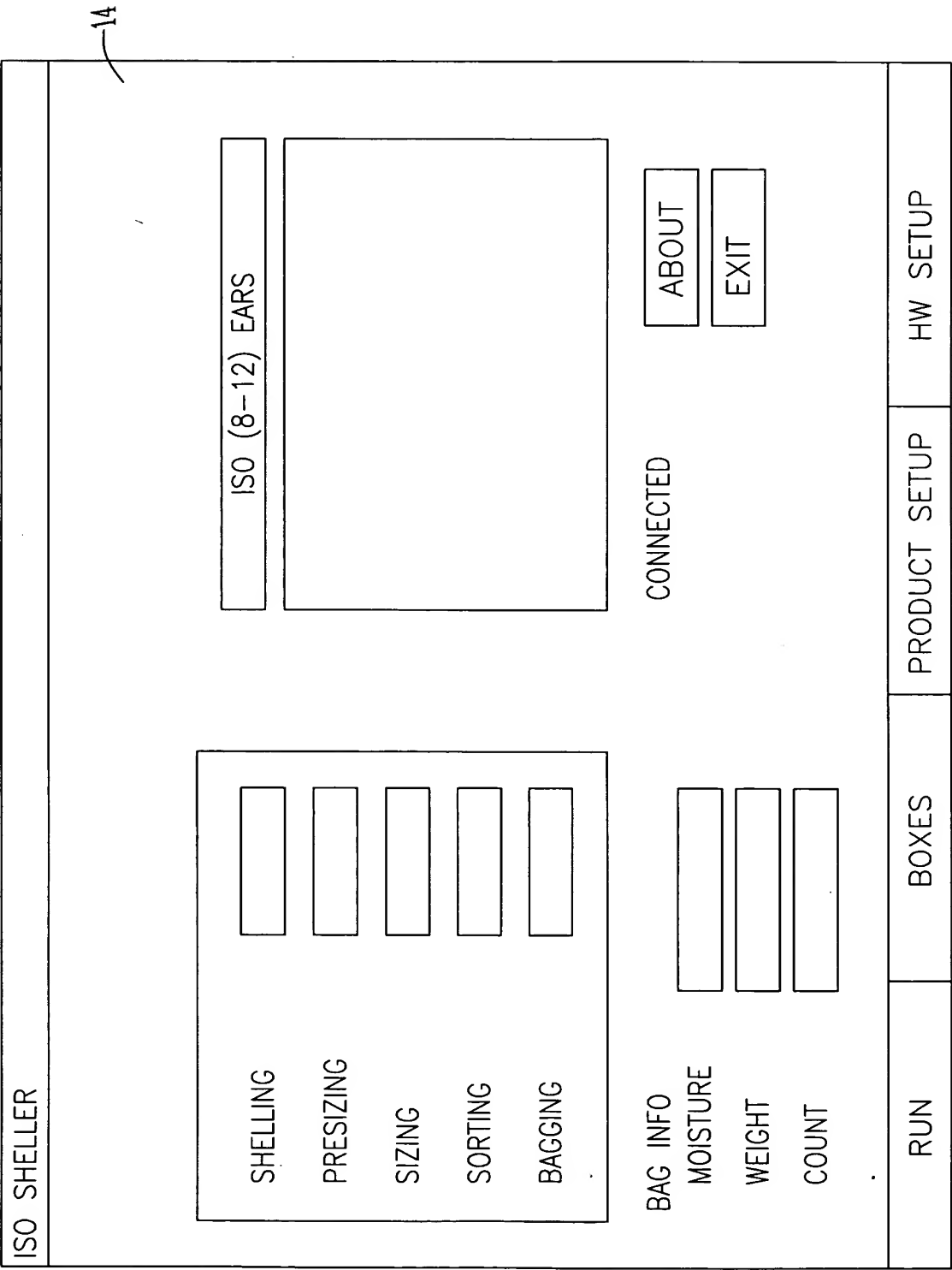


Fig. 22

14

LABEL FIELD	DATABASE FIELD
BARCODE	BARCODE SEARCH
LOCID	LOC
GMO	GMO
EXPID	EXPID
ENTRY	ENTRY
RANGE	RANGE
PLOT	NONE
BOXID	BOXID

SUGGEST OK CANCEL

*Fig. 23A*

14

LABEL SETUP <DISCARDLABEL>

LABEL FIELD	DATABASE FIELD
BOXID	BOXID
	BARCODE SEARCH
	NONE
	BOXID
	RANGE
	ENTRY

SUGGEST

OK

CANCEL

Fig. 23B

ISO SELLER

X

	PRINT	FULL	BOX ID	BAG COUNT	SHIPPED	RANGE
	<input checked="" type="checkbox"/>	<input type="checkbox"/>	AG #1			
▲	<input checked="" type="checkbox"/>	<input type="checkbox"/>	CL #1			
	<input checked="" type="checkbox"/>	<input type="checkbox"/>	GC #1			
	<input checked="" type="checkbox"/>	<input type="checkbox"/>	UNKNOWN #1			
	<input checked="" type="checkbox"/>	<input type="checkbox"/>	WW #1			

SELECT ALL

NOT SHIPPED

PRINT MANIFEST

PRINT

EXIT

RUN

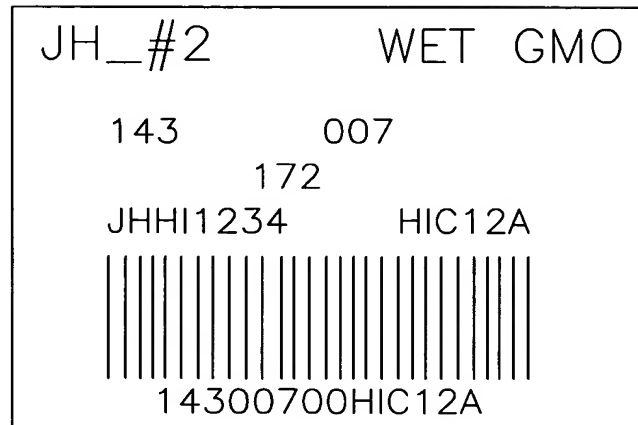
TODAY

PRODUCT SETUP

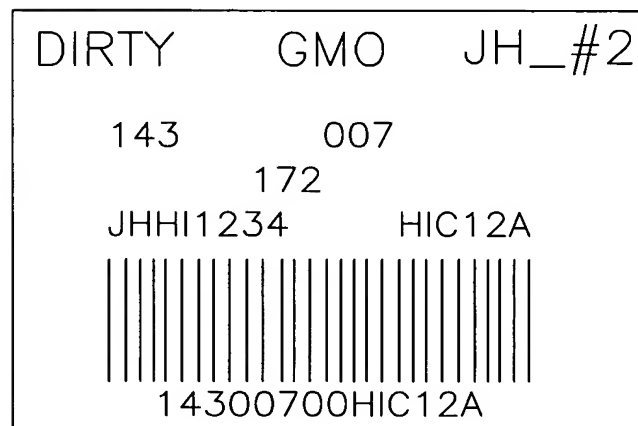
HARDWARE SETUP

Fig. 24

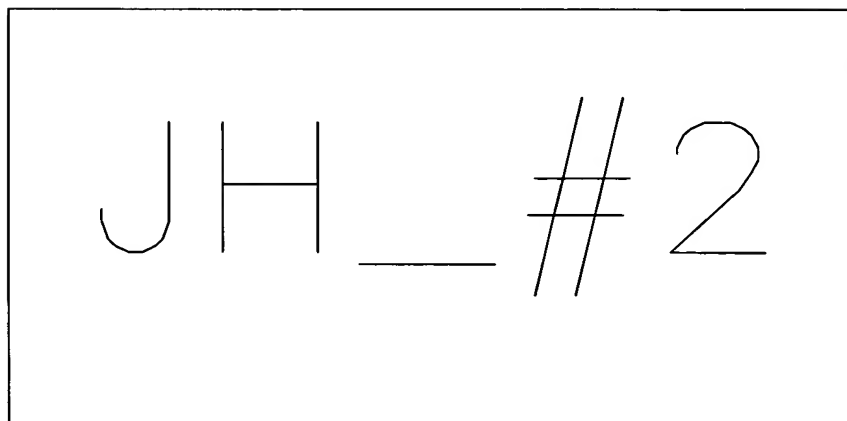




*Fig. 25A*



*Fig. 25B*



*Fig. 25C*

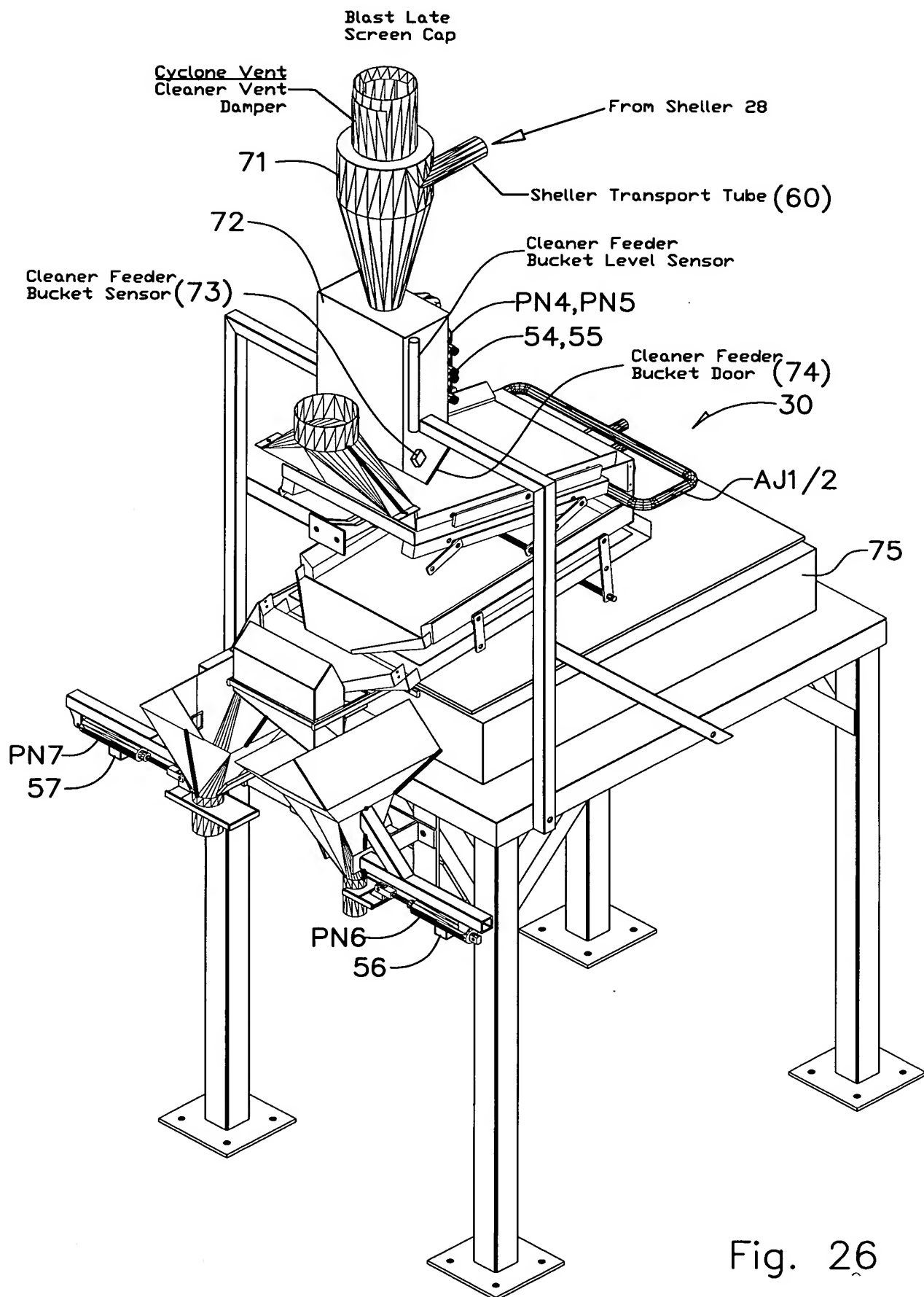


Fig. 26

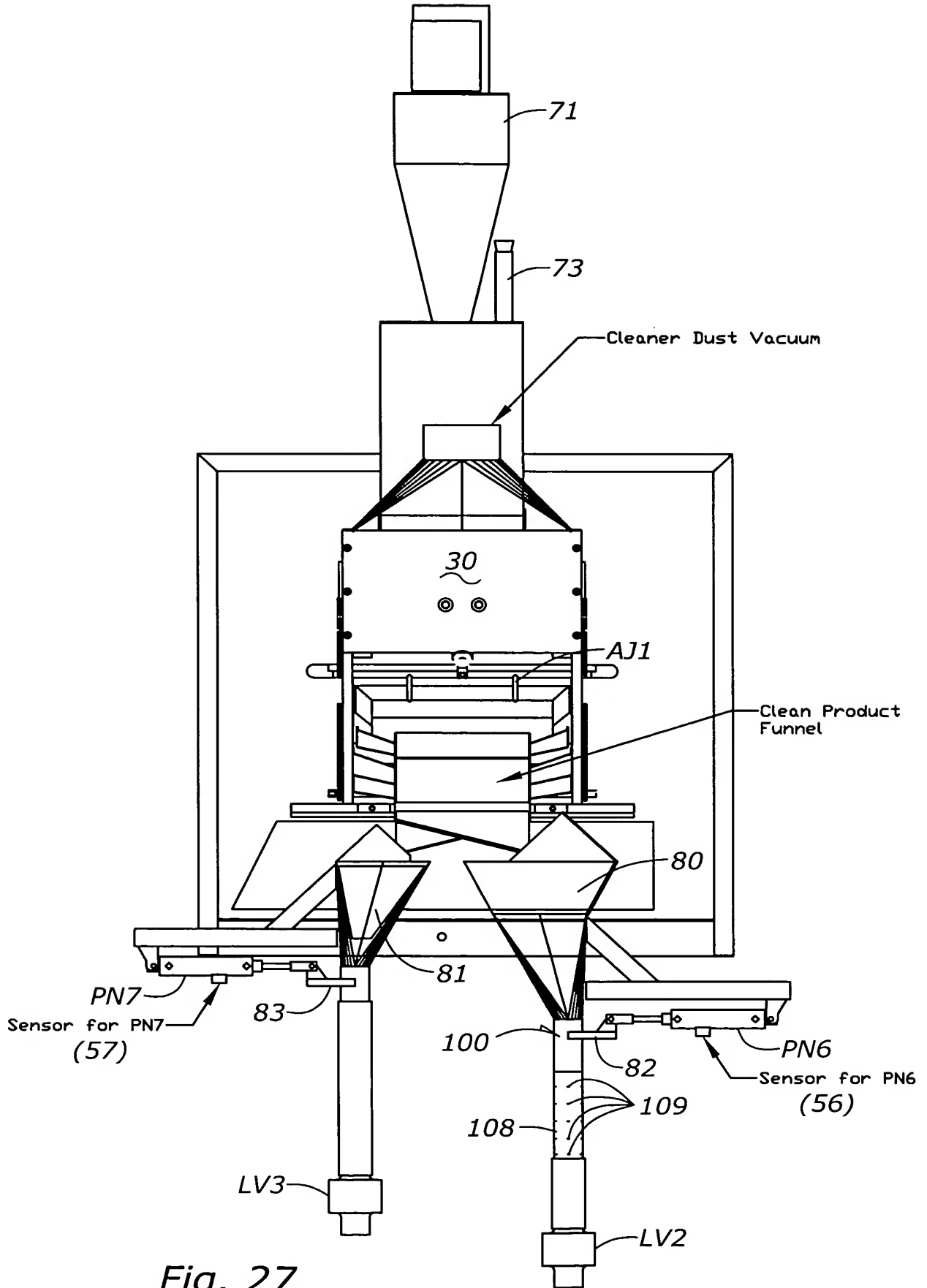
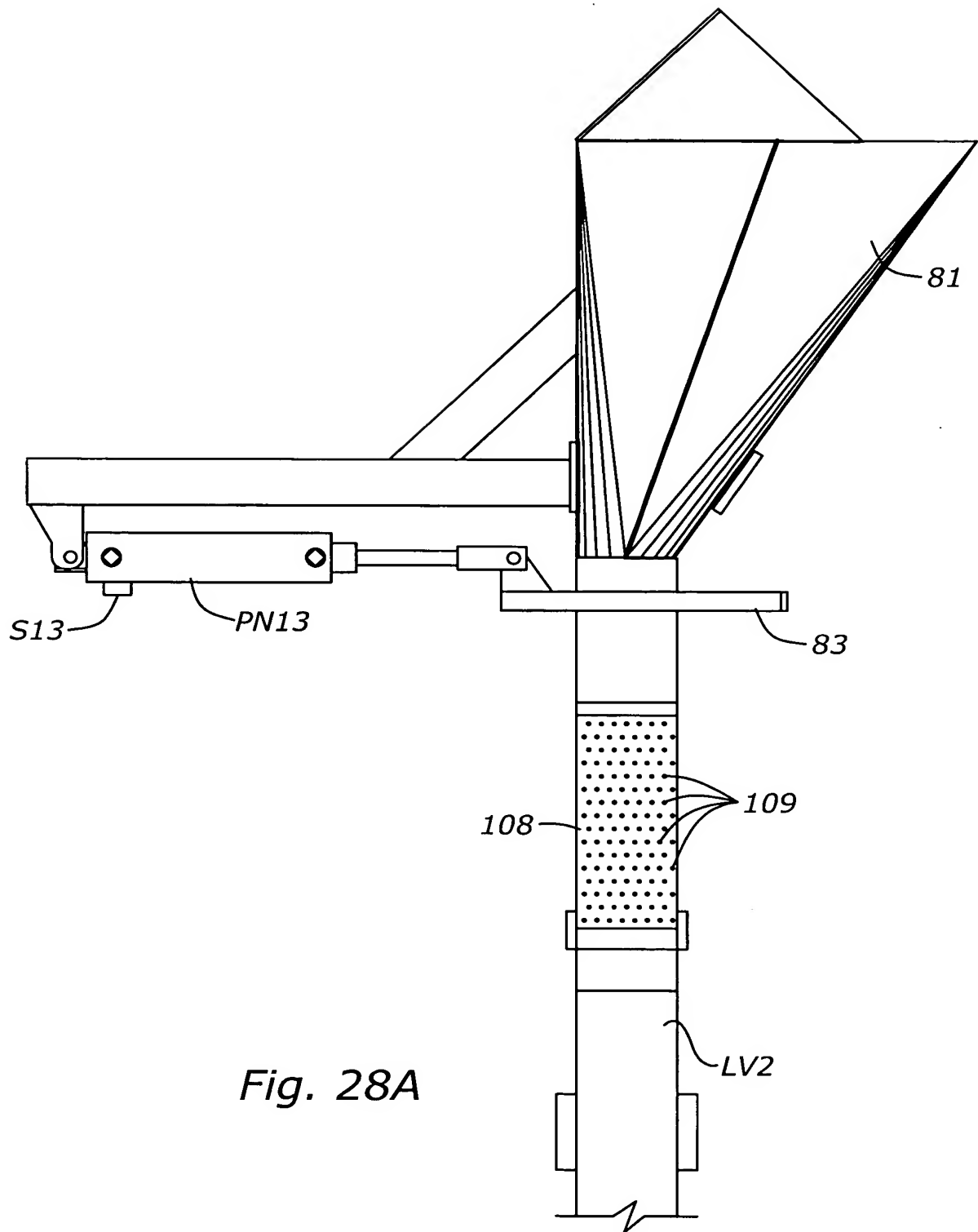
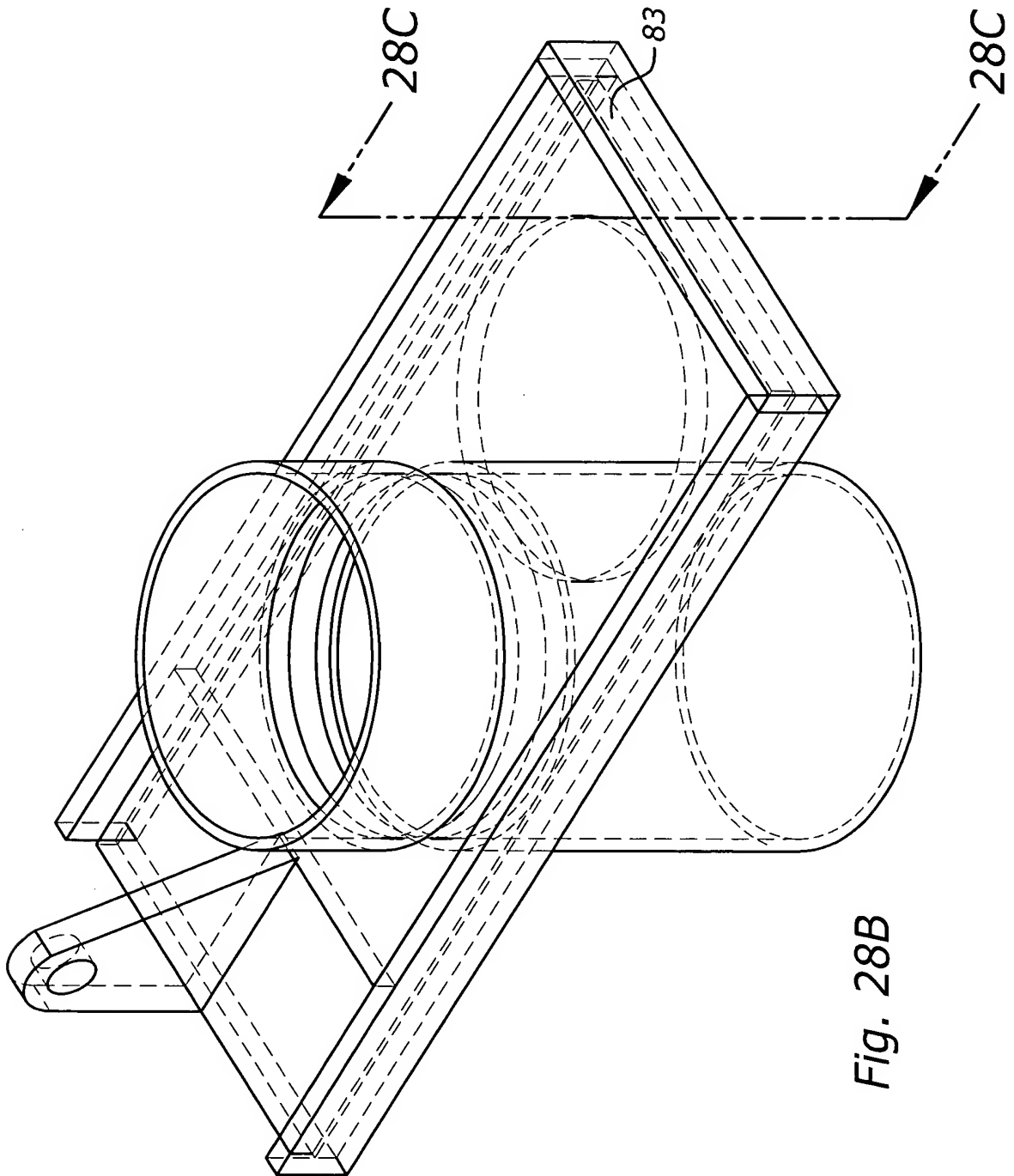


Fig. 27





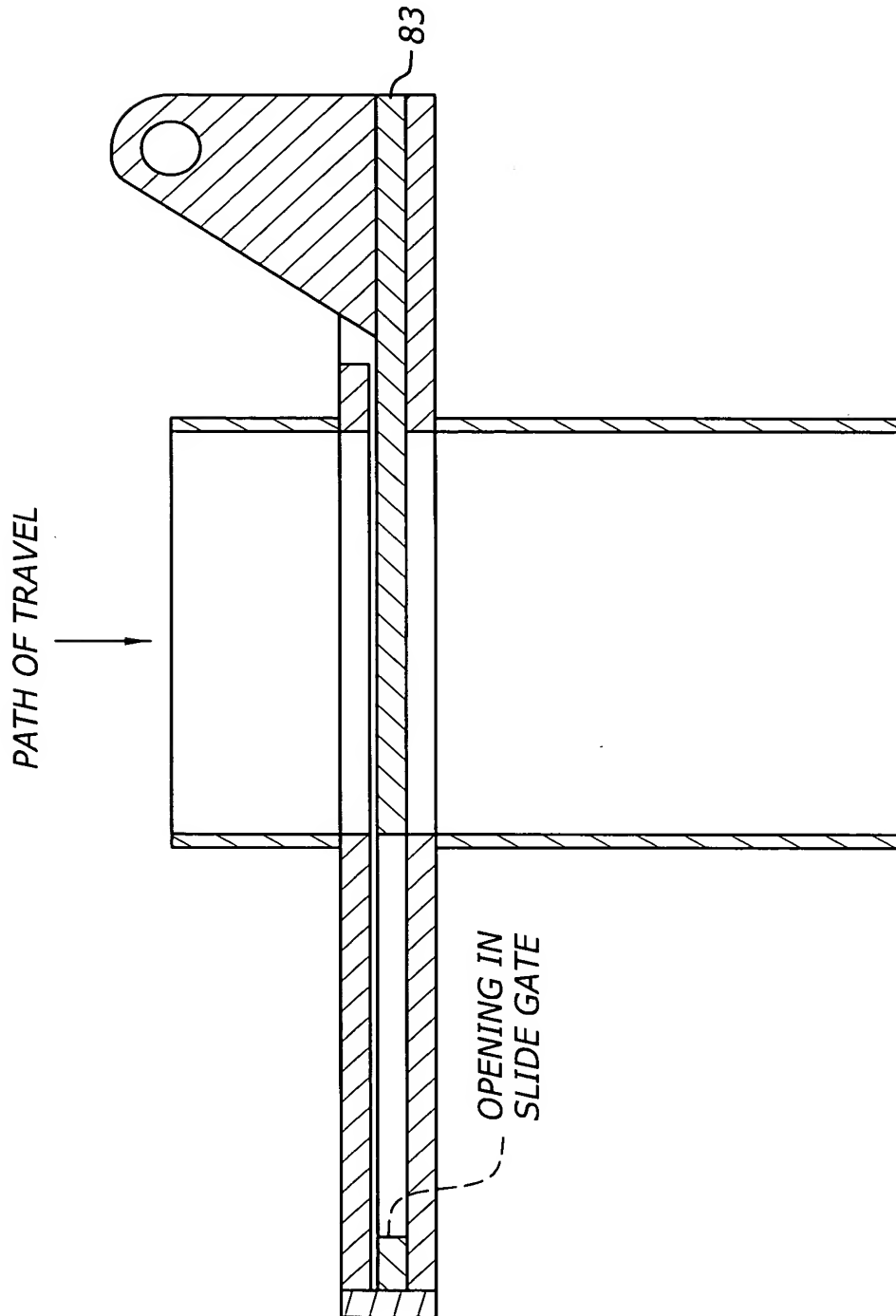
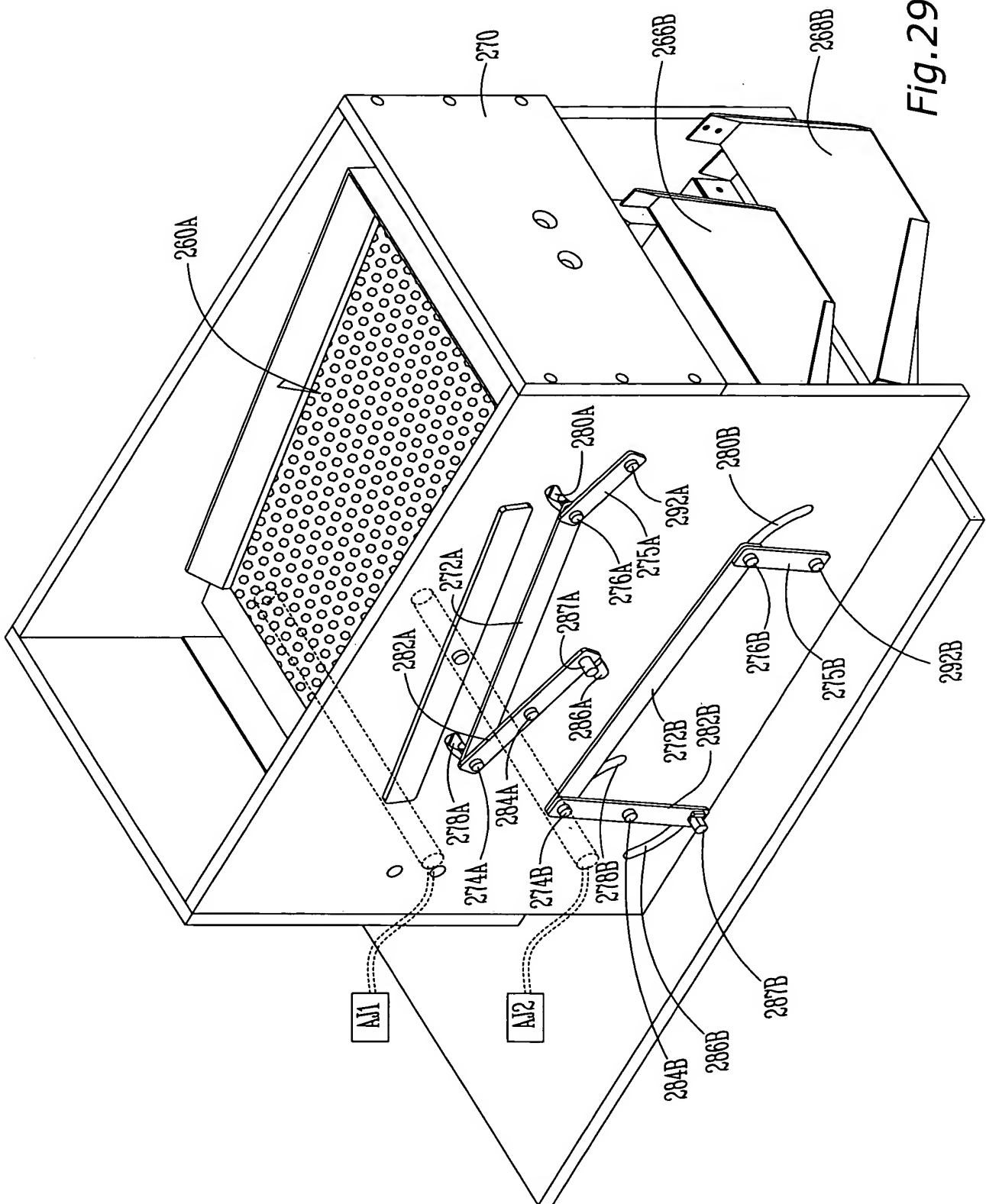
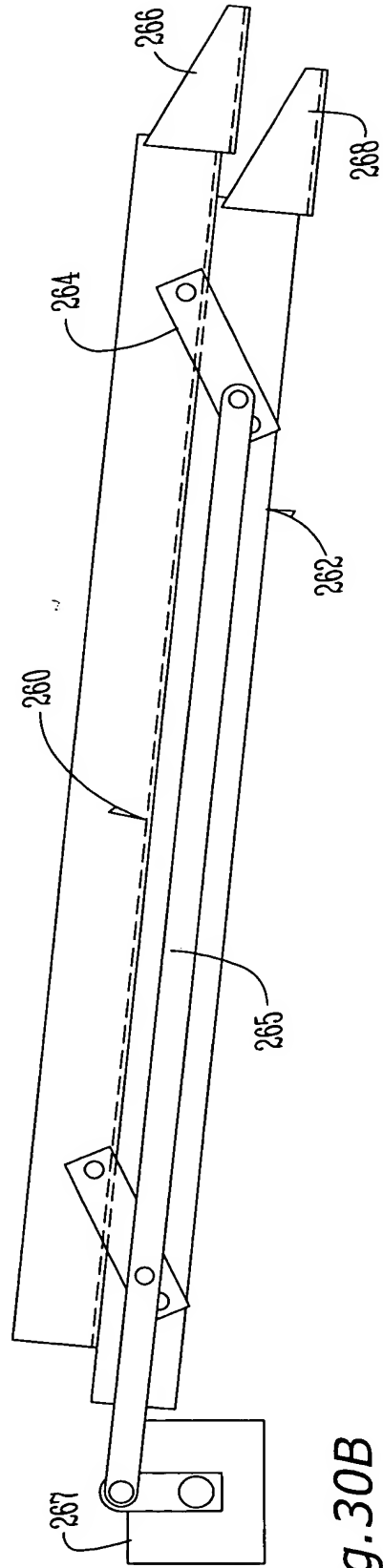
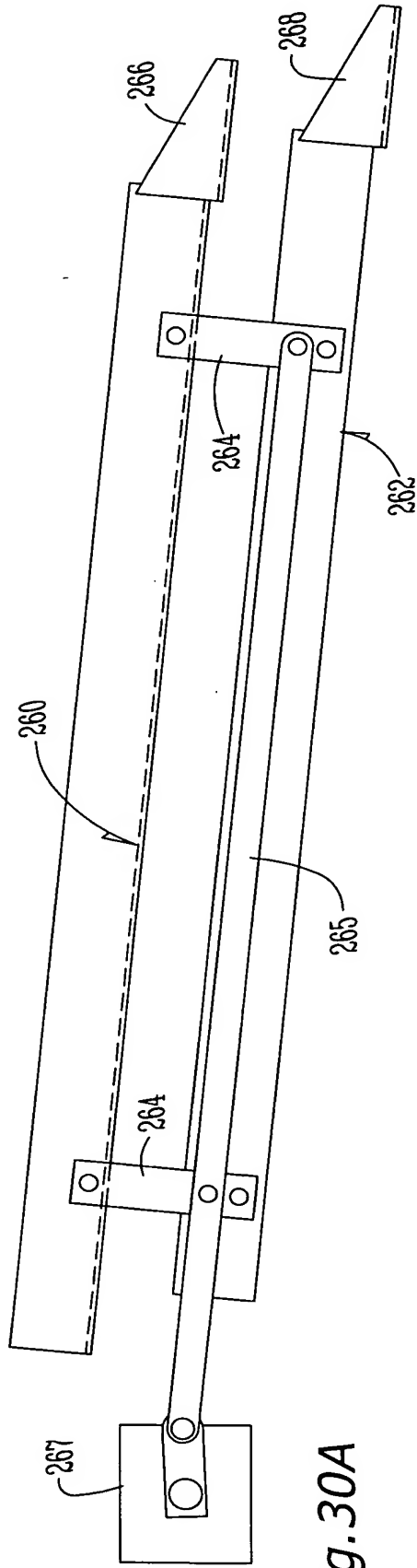


Fig. 28C







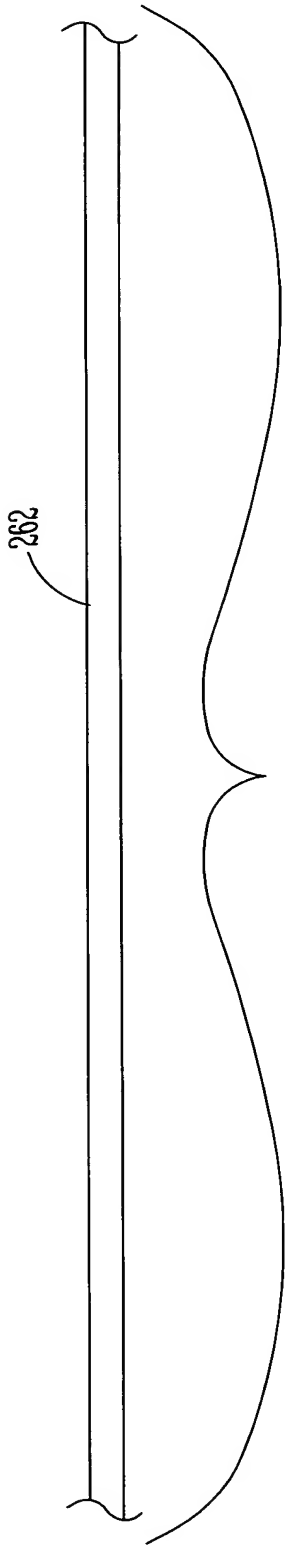
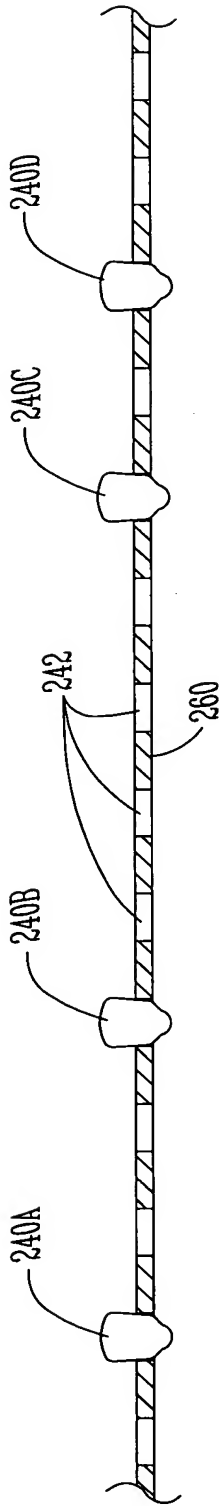


Fig.31

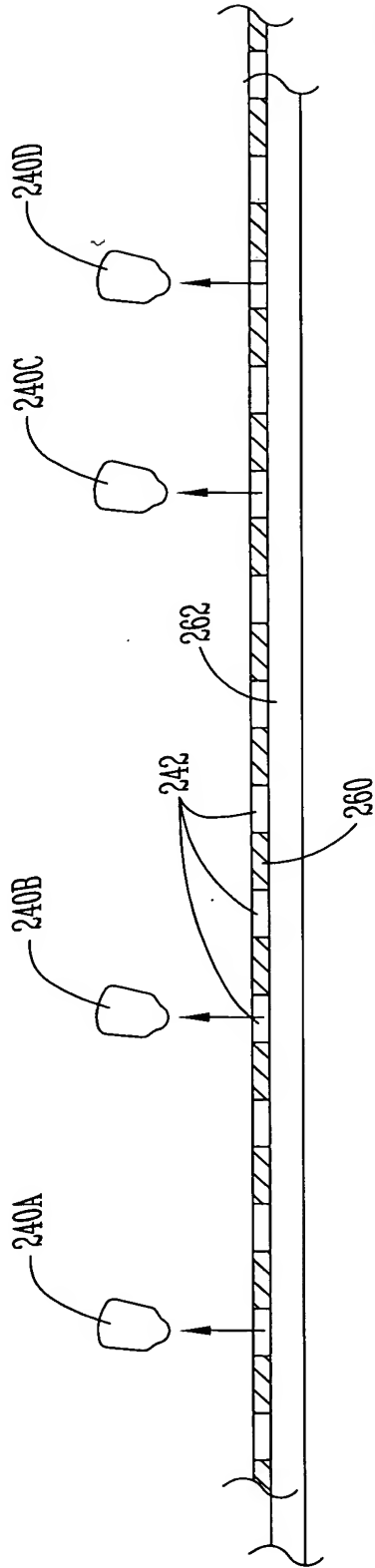


Fig.32

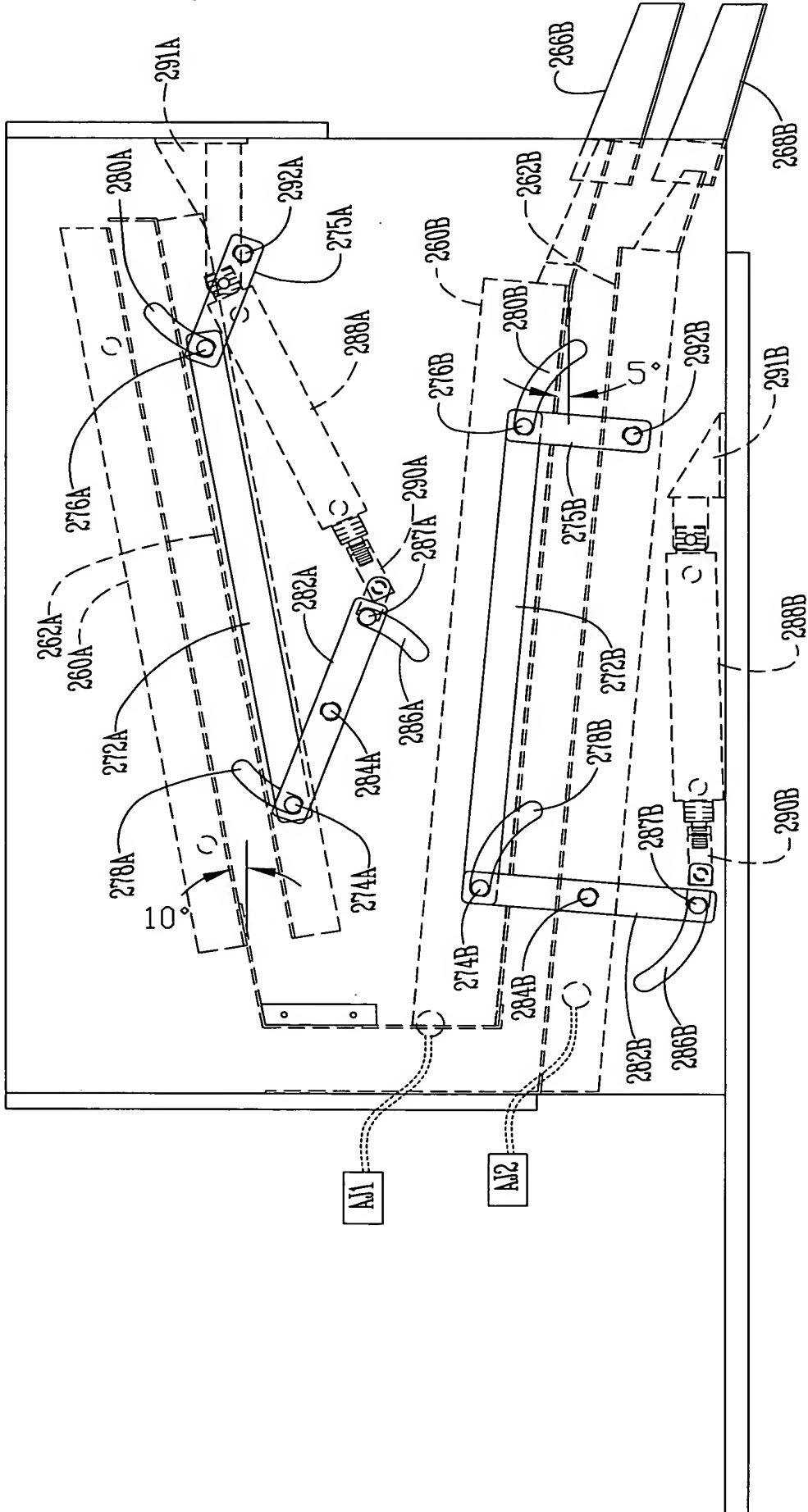


Fig. 33

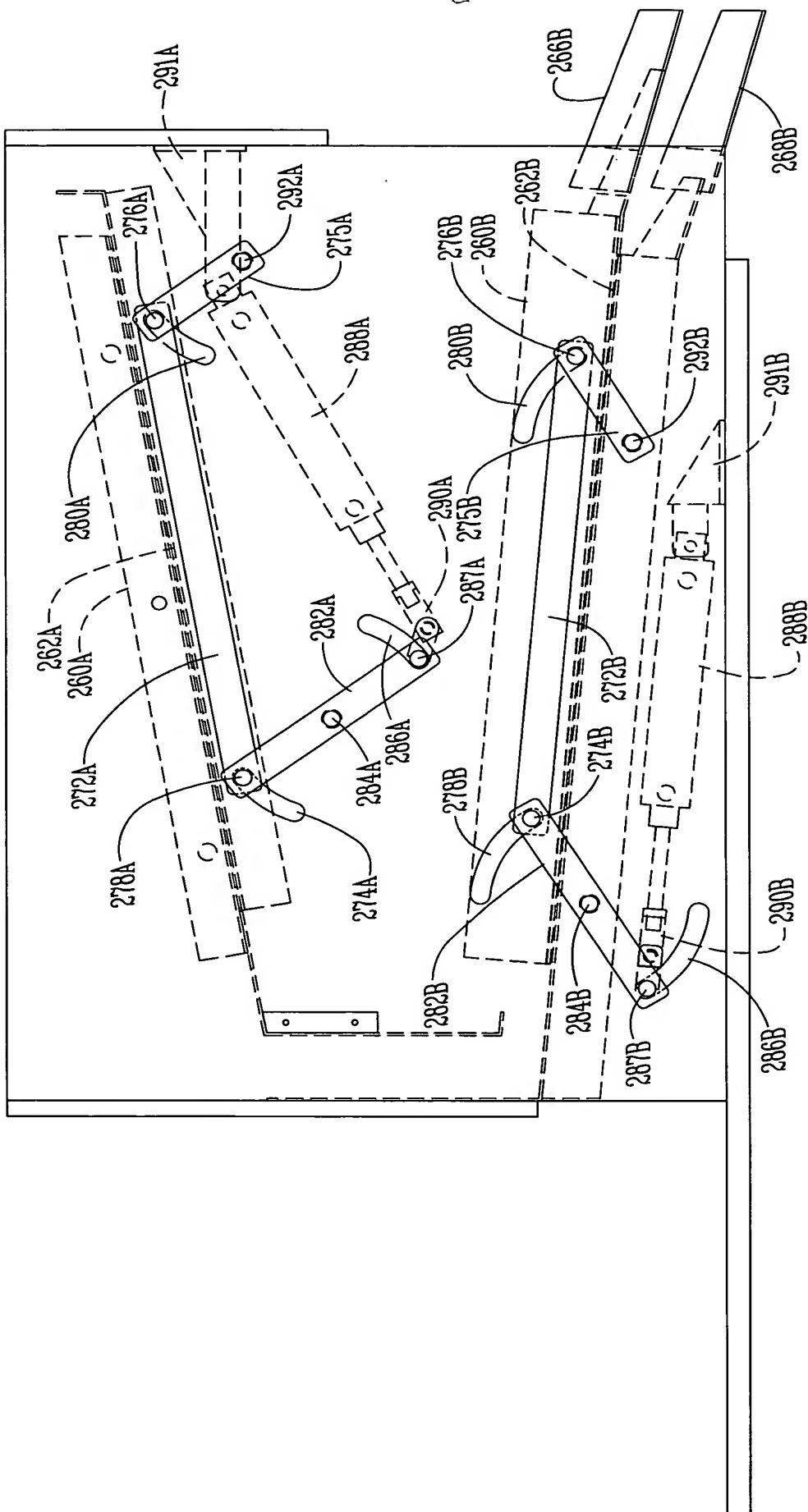
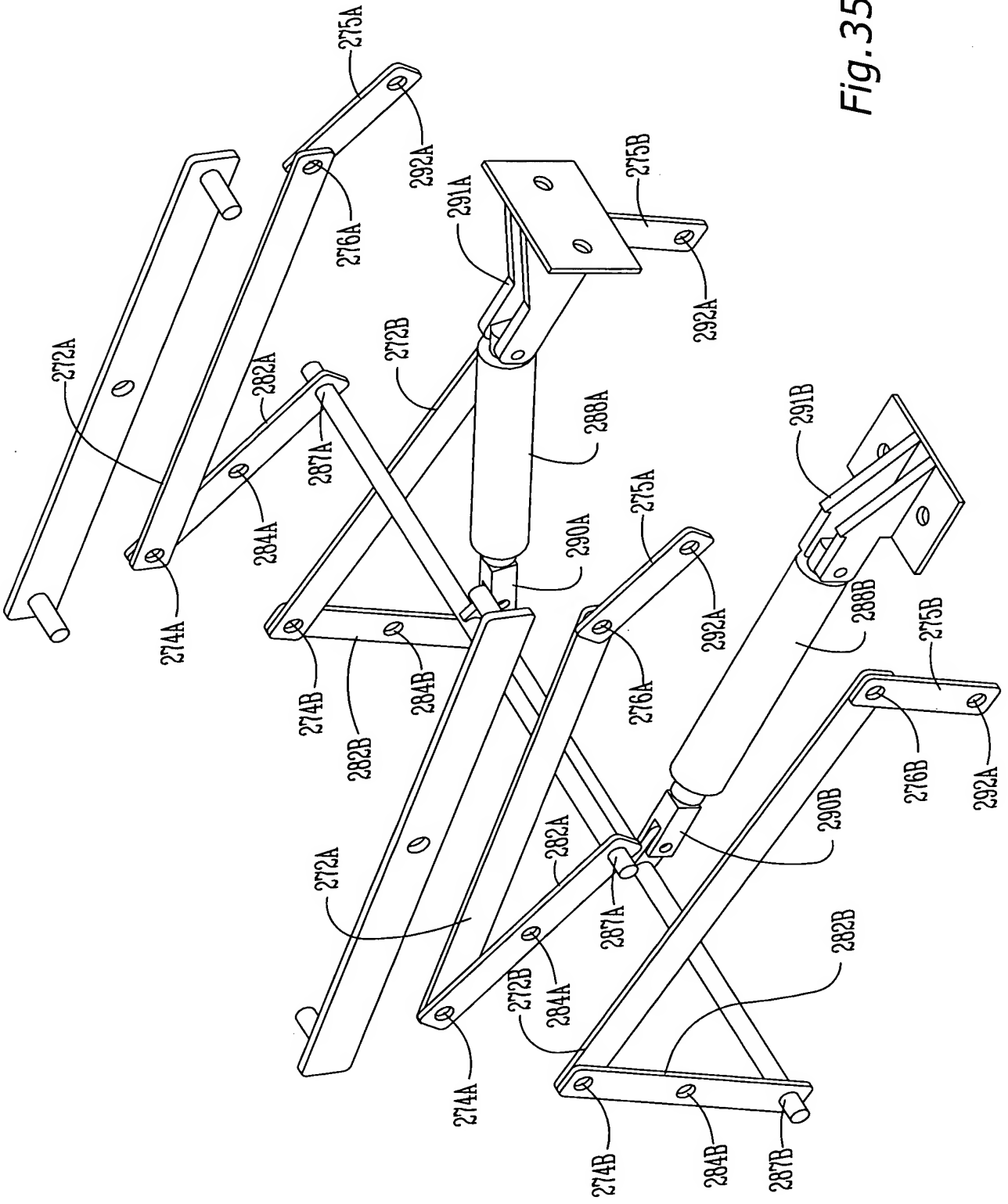


Fig. 34



**Fig. 35**

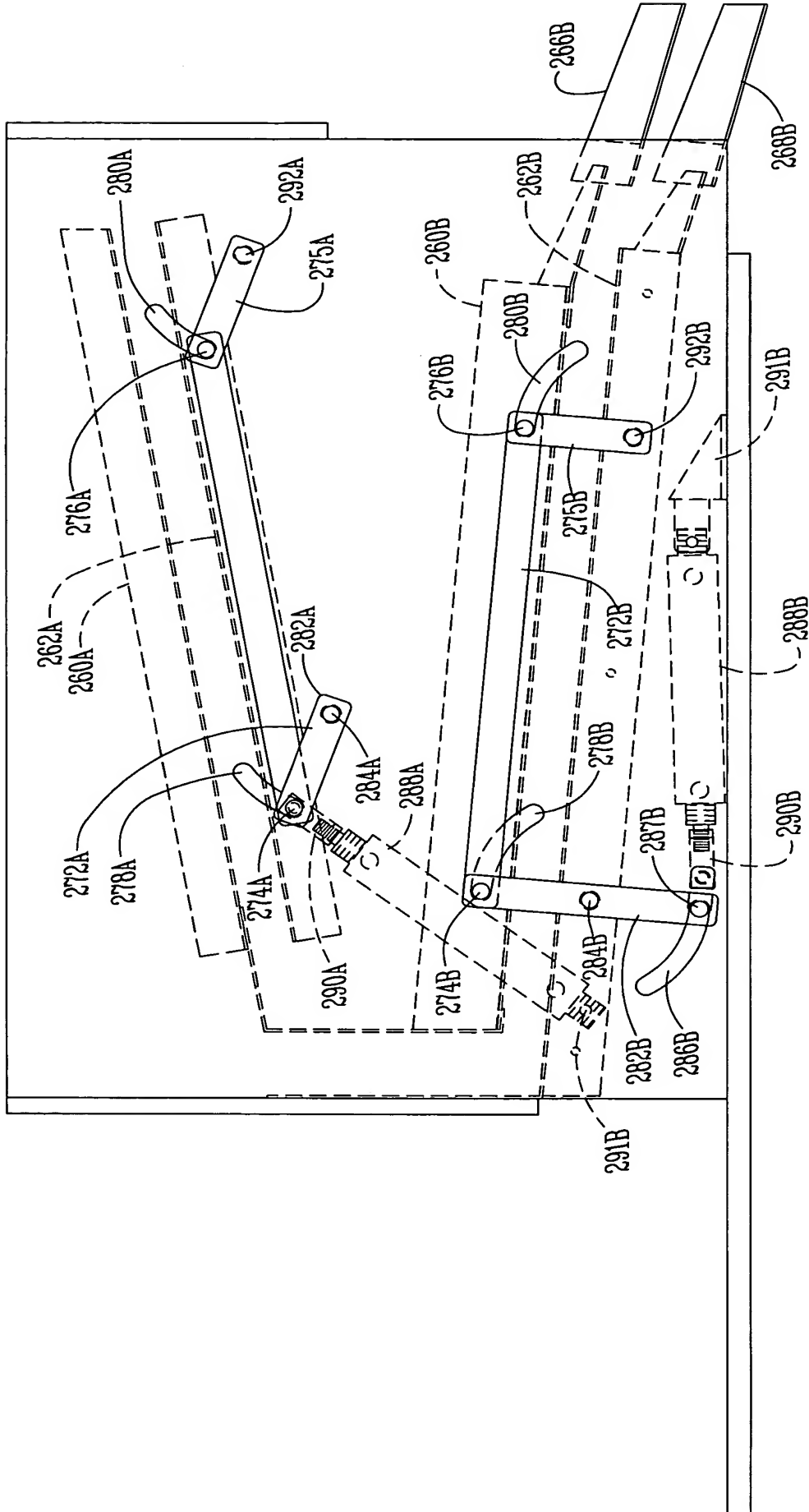
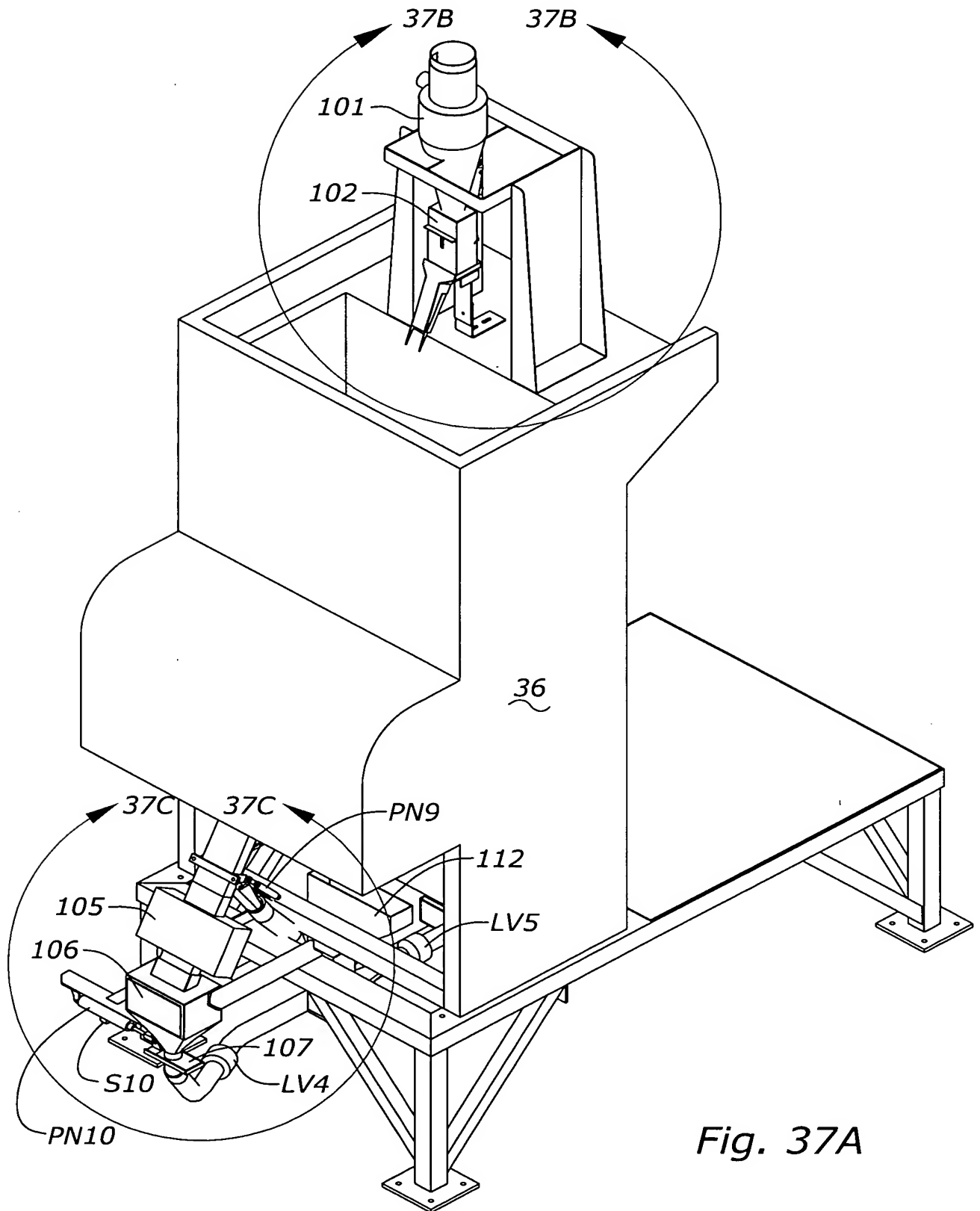
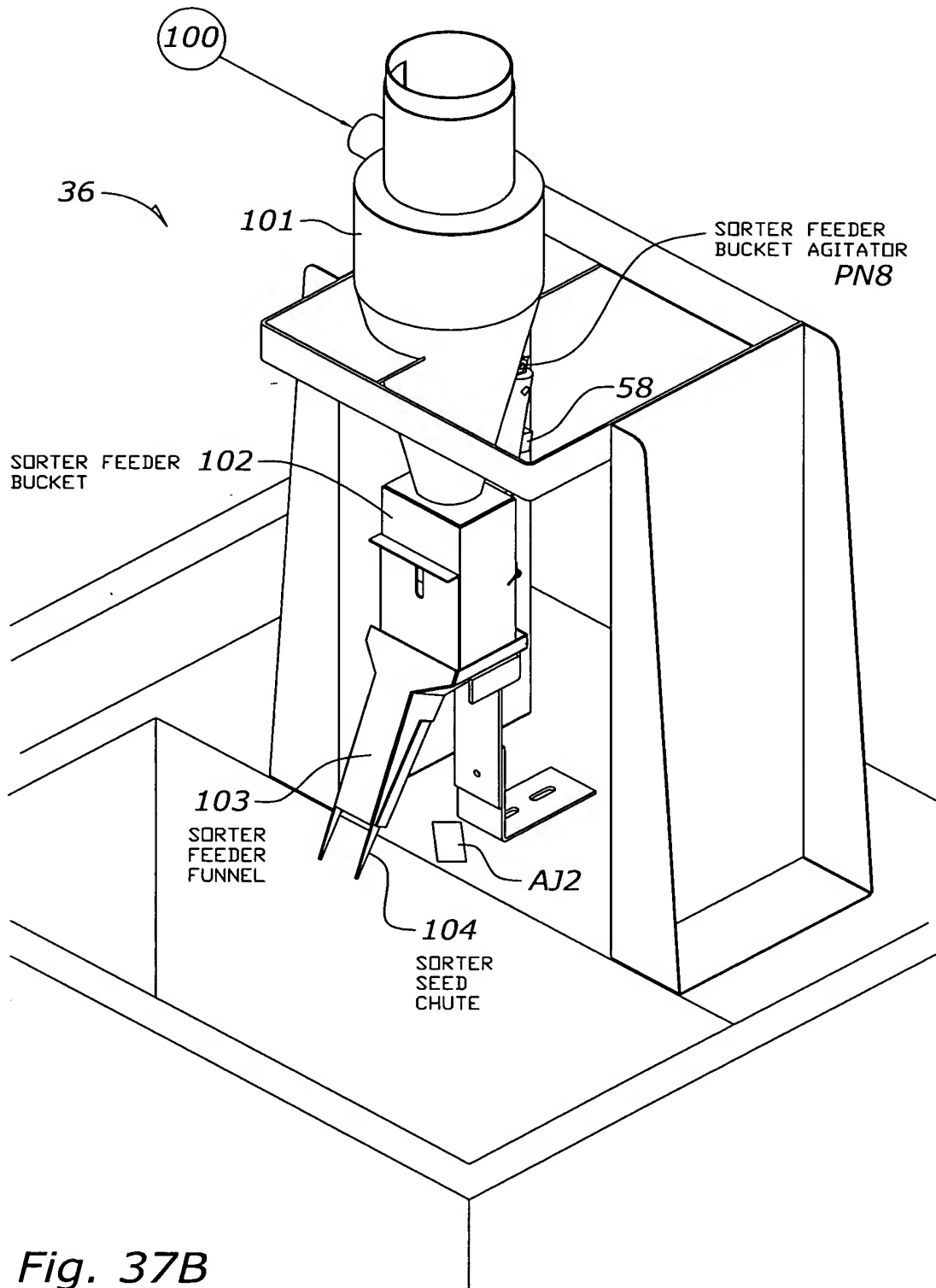


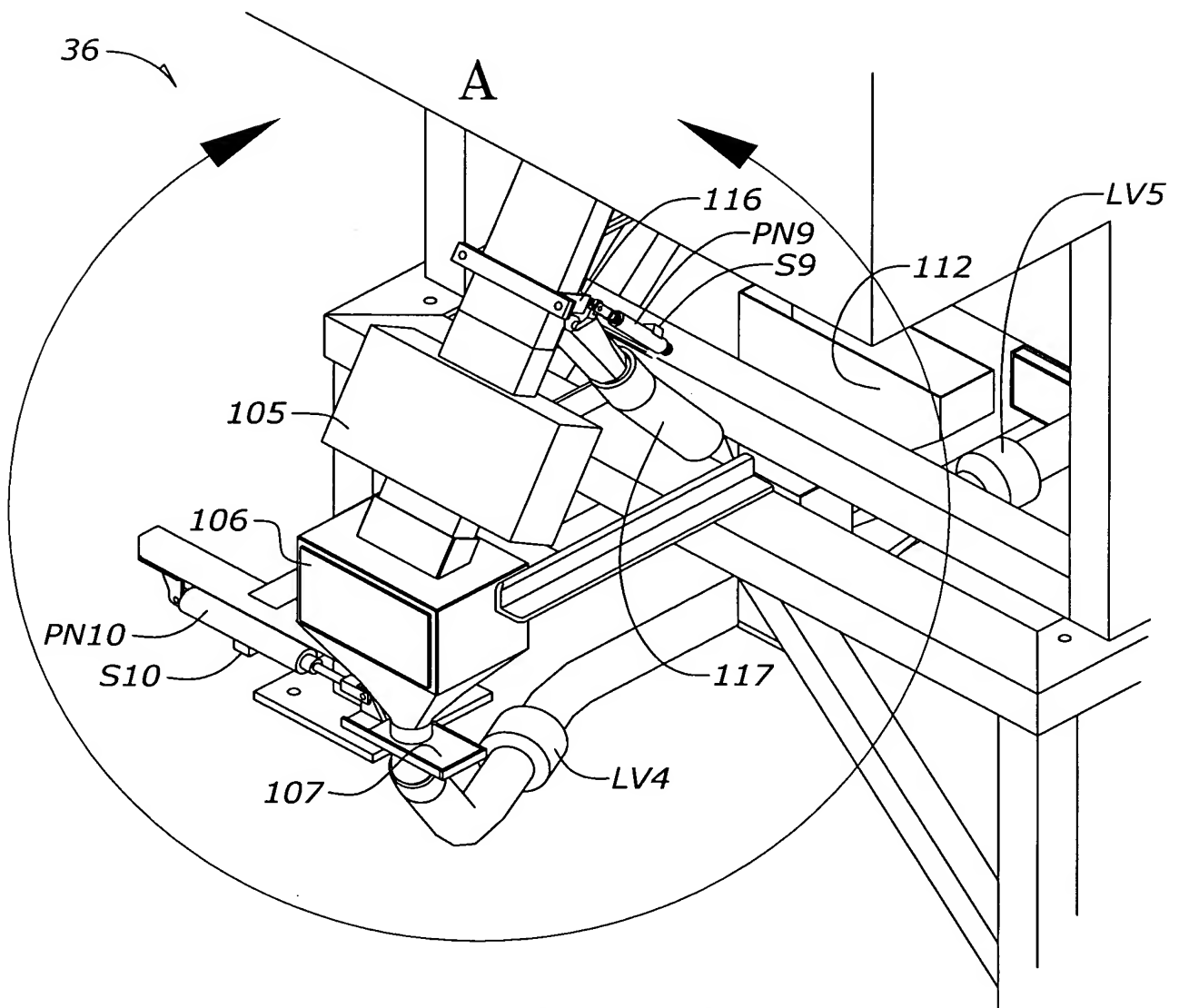
Fig. 36



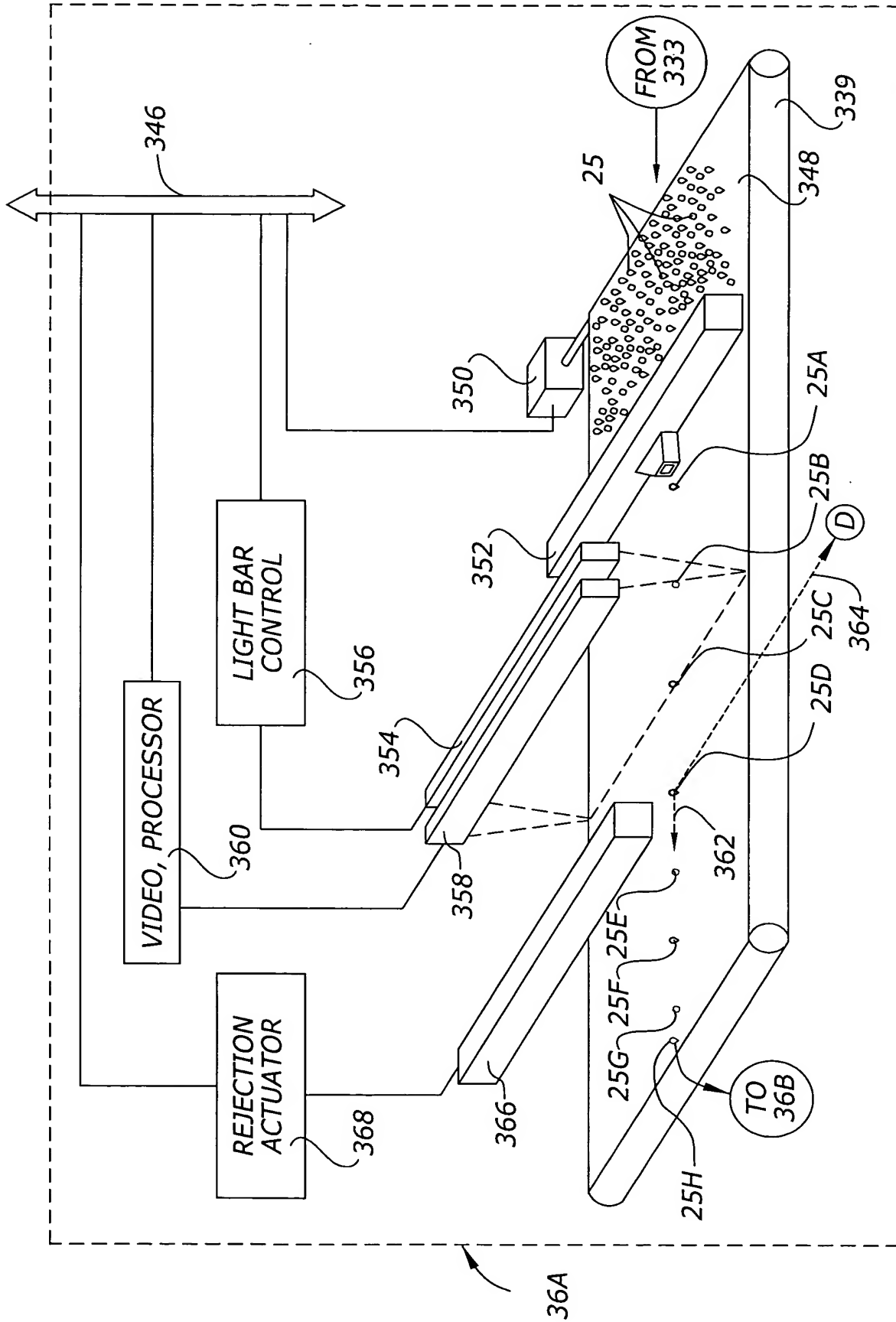
*Fig. 37A*



*Fig. 37B*







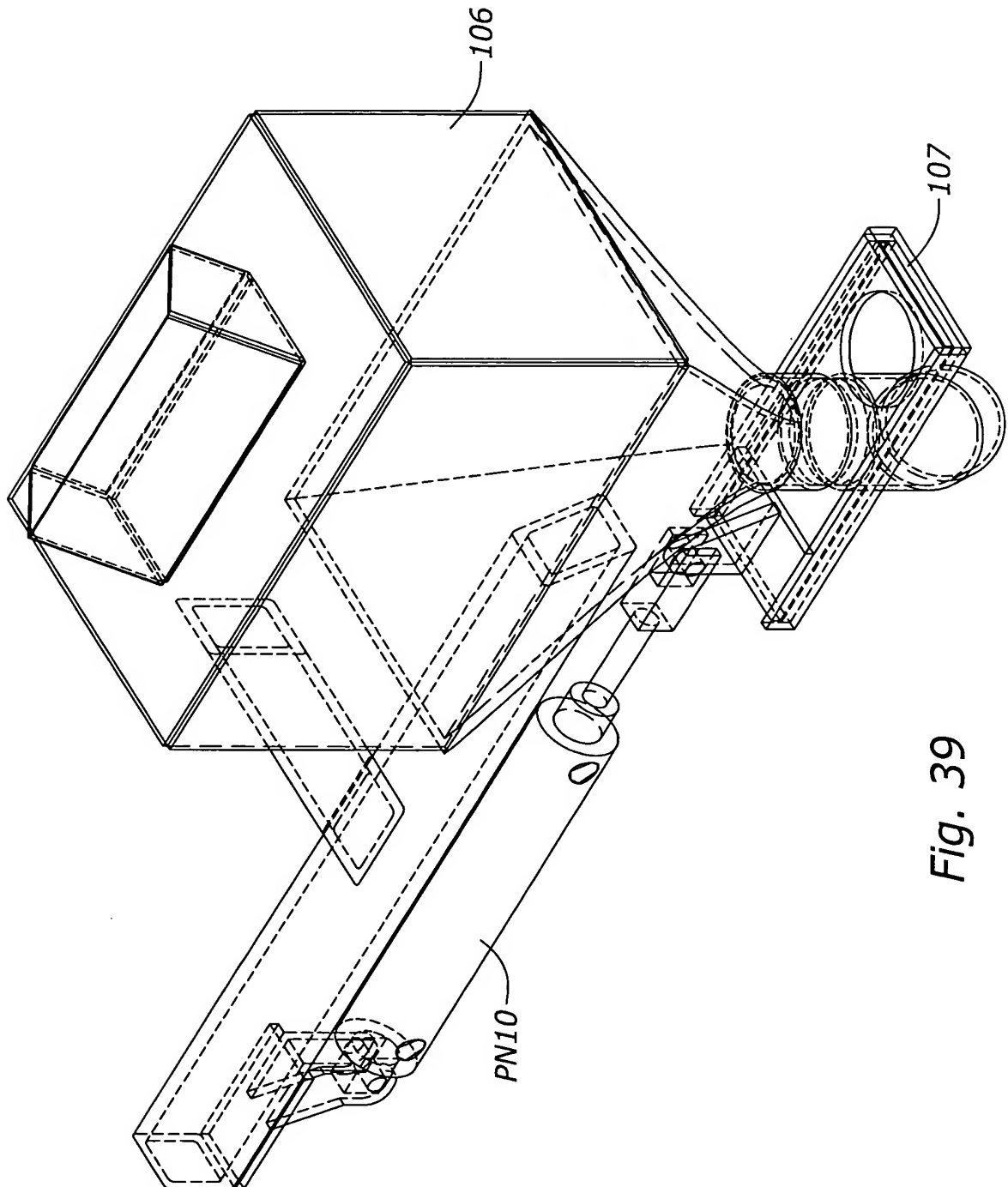


Fig. 39

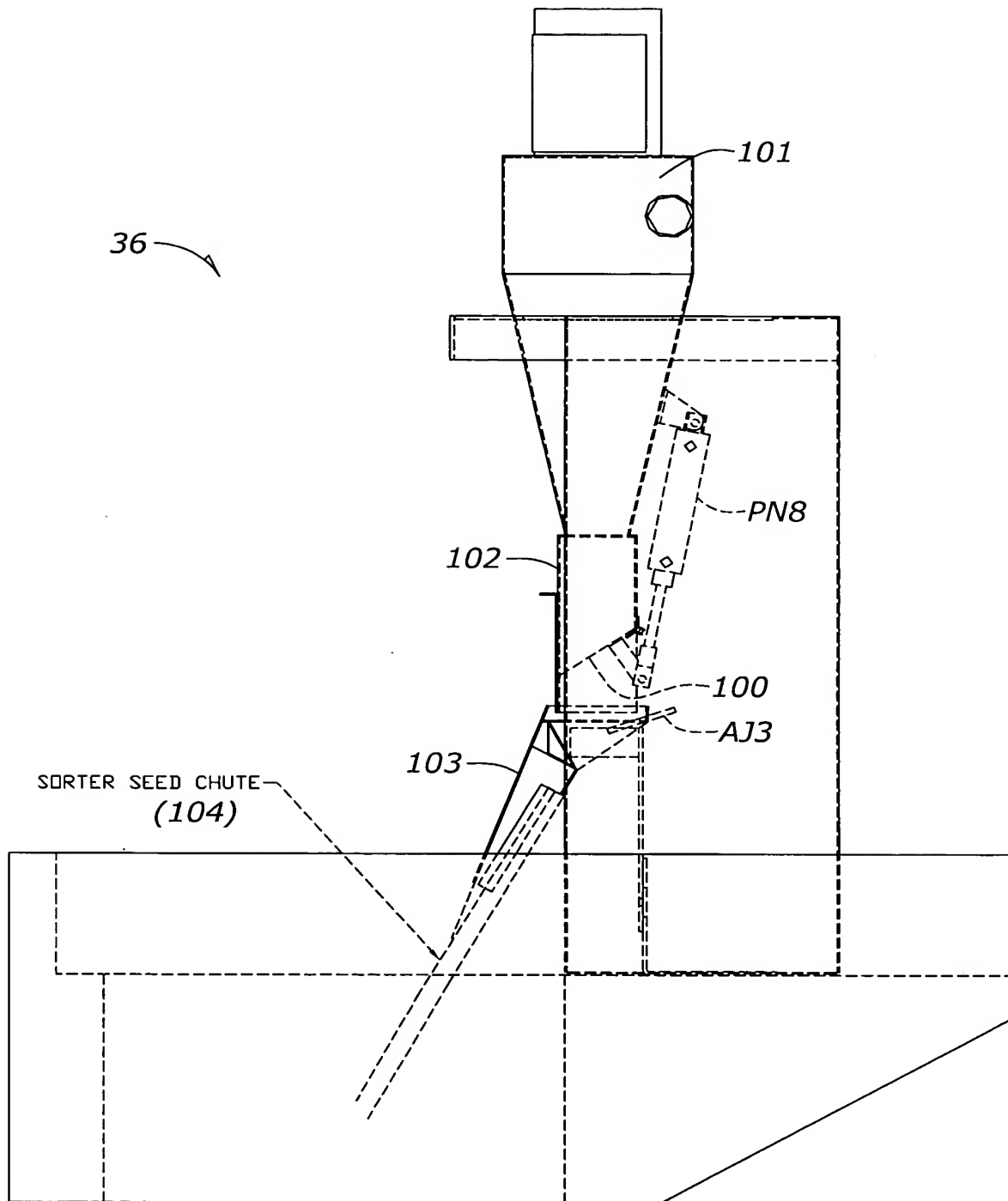
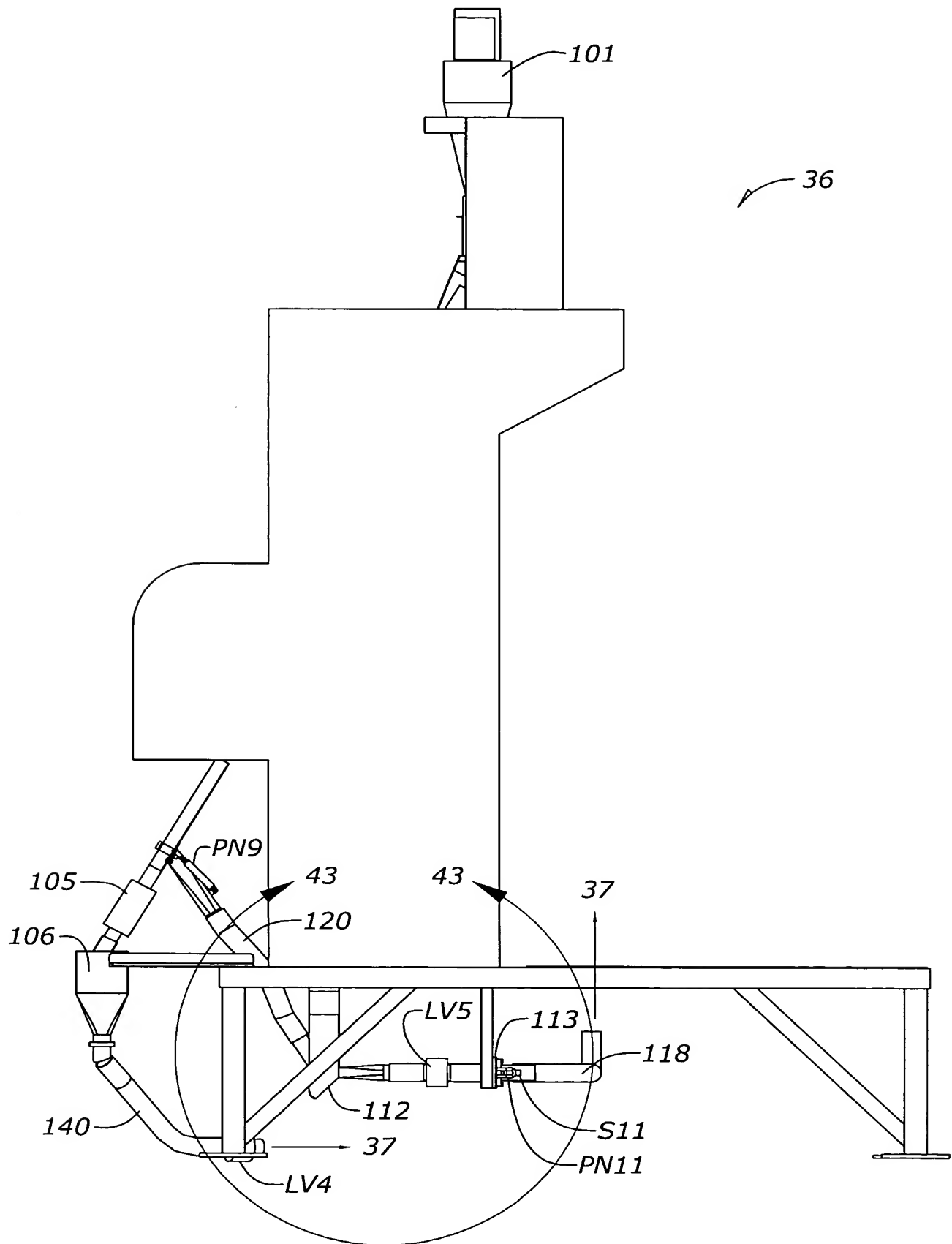


Fig. 40



**Fig. 41**

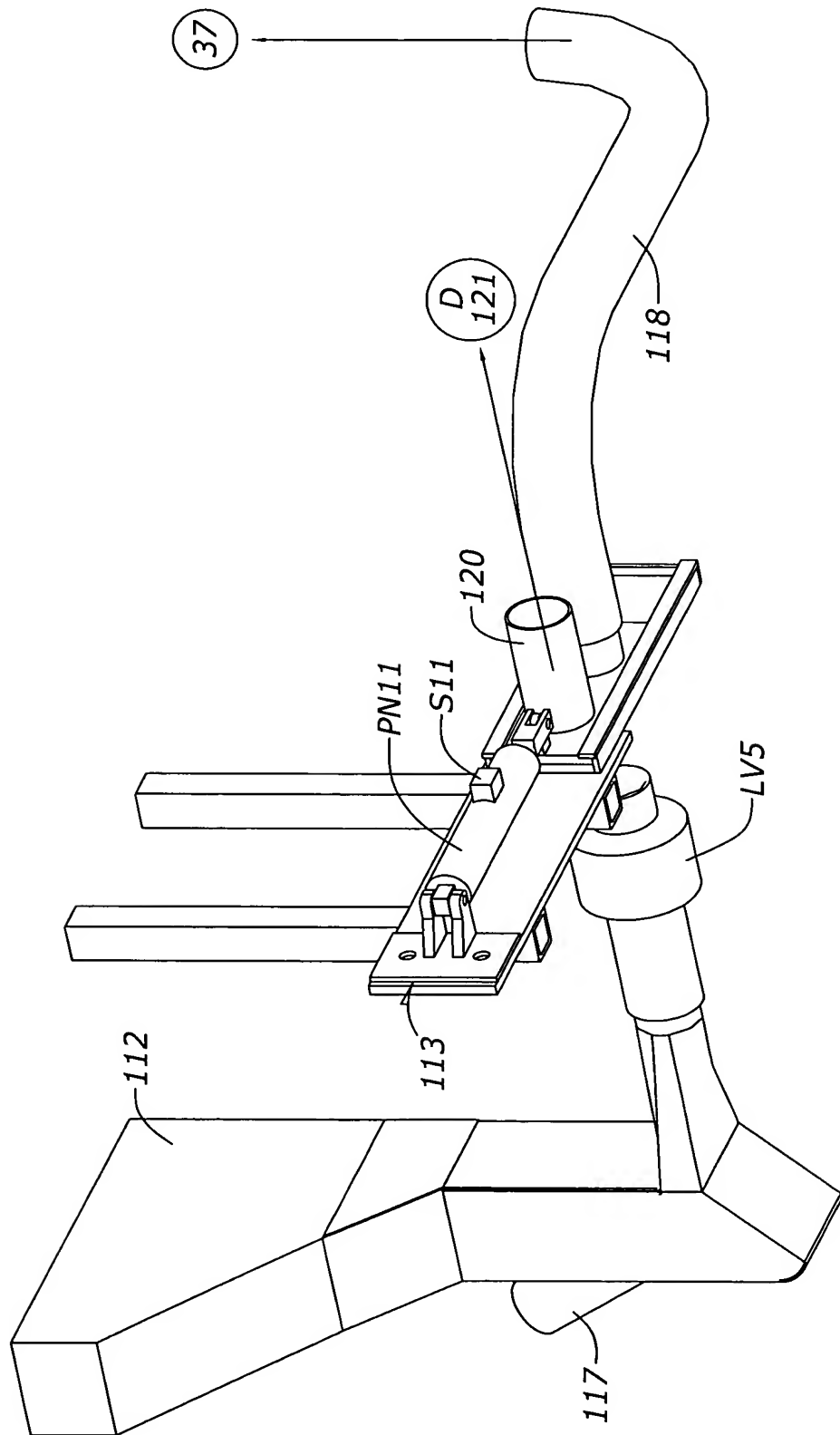


Fig. 42

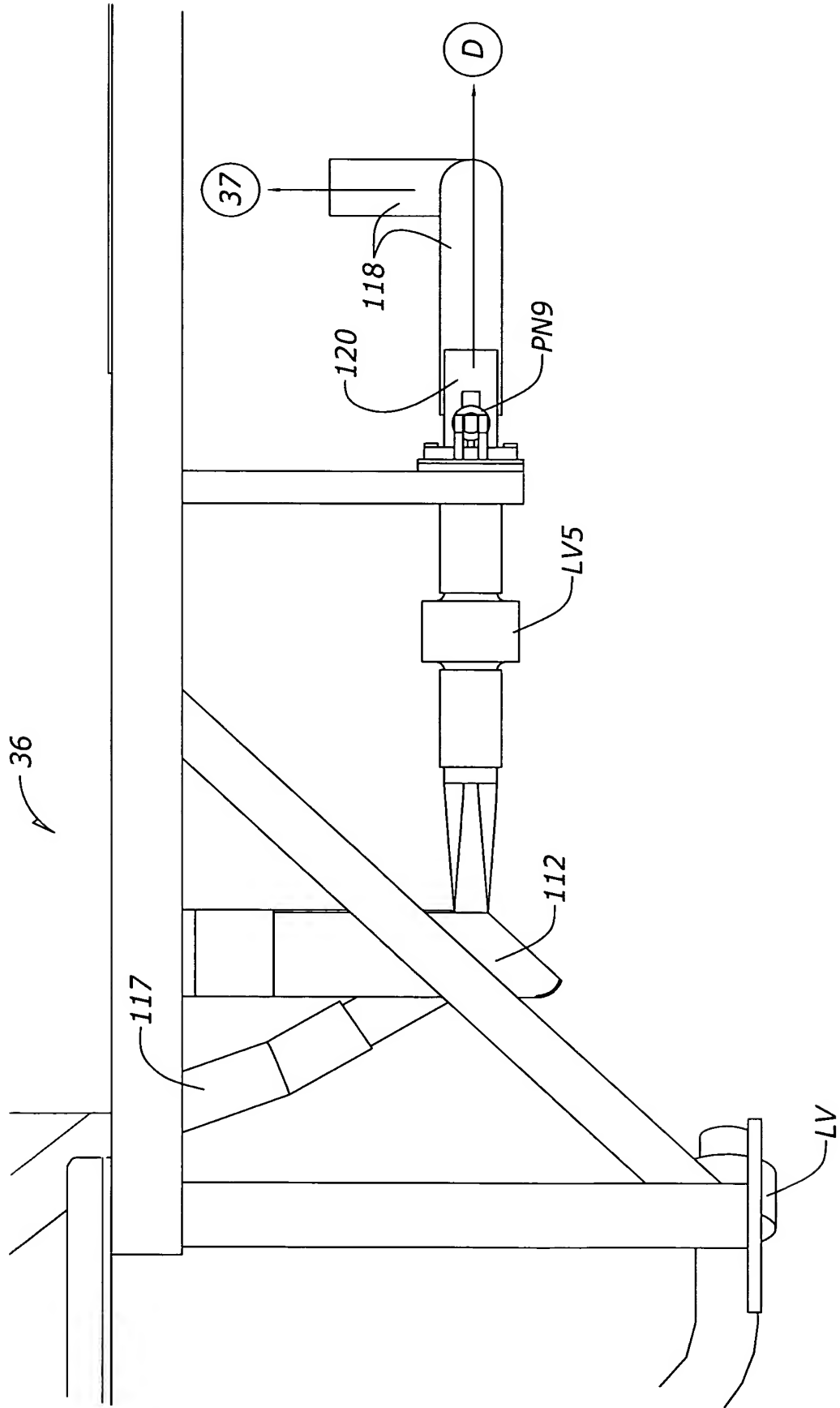
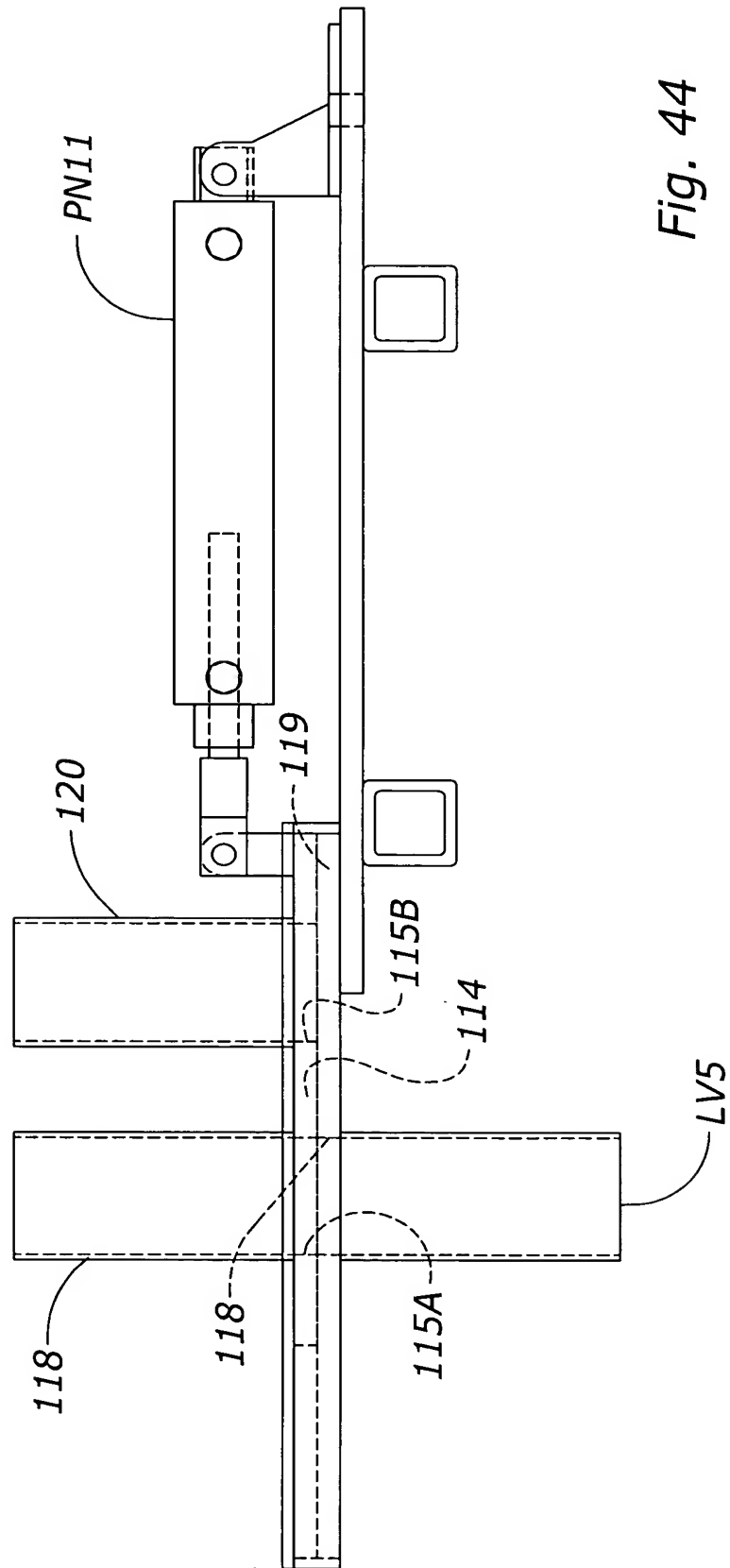
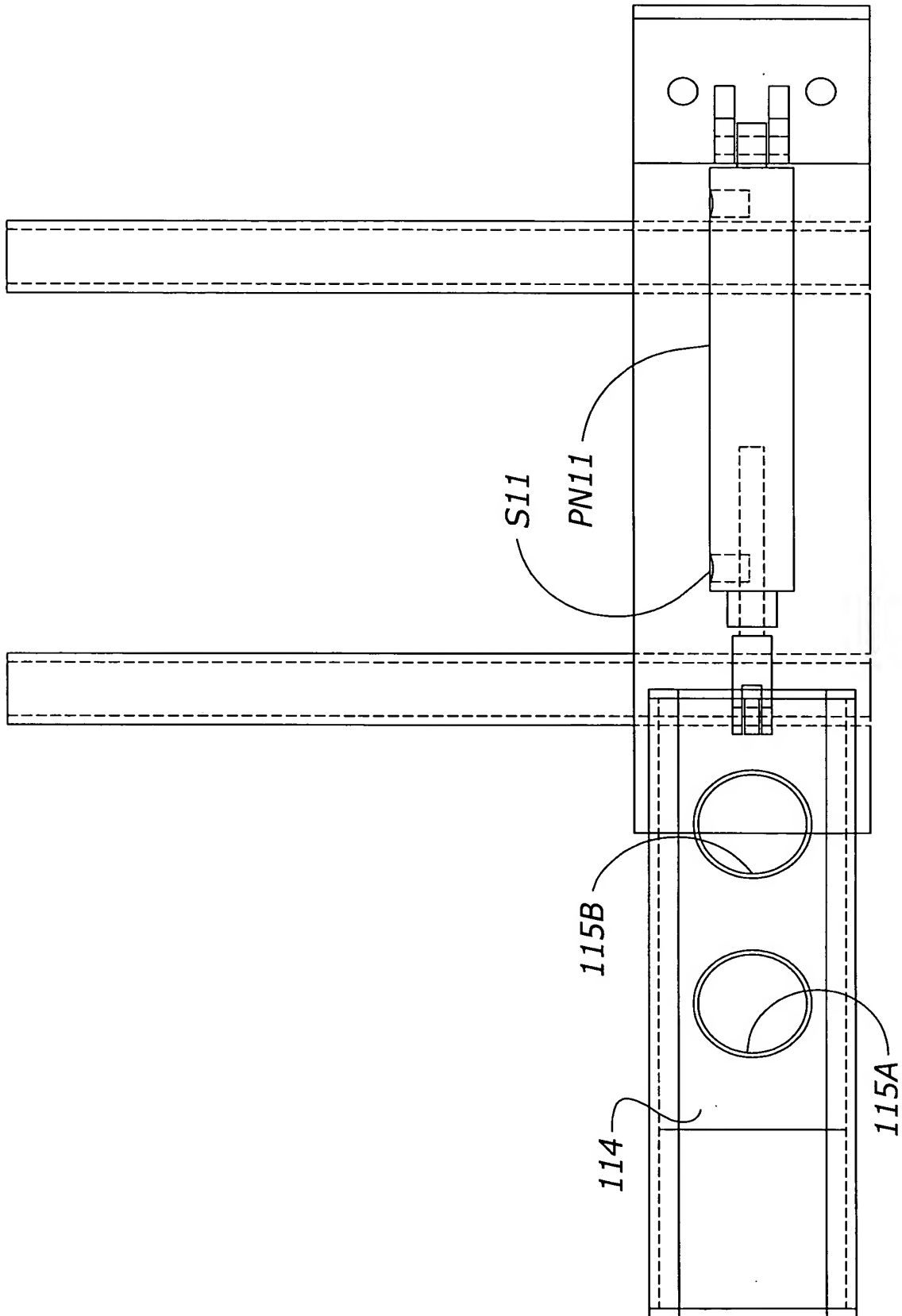


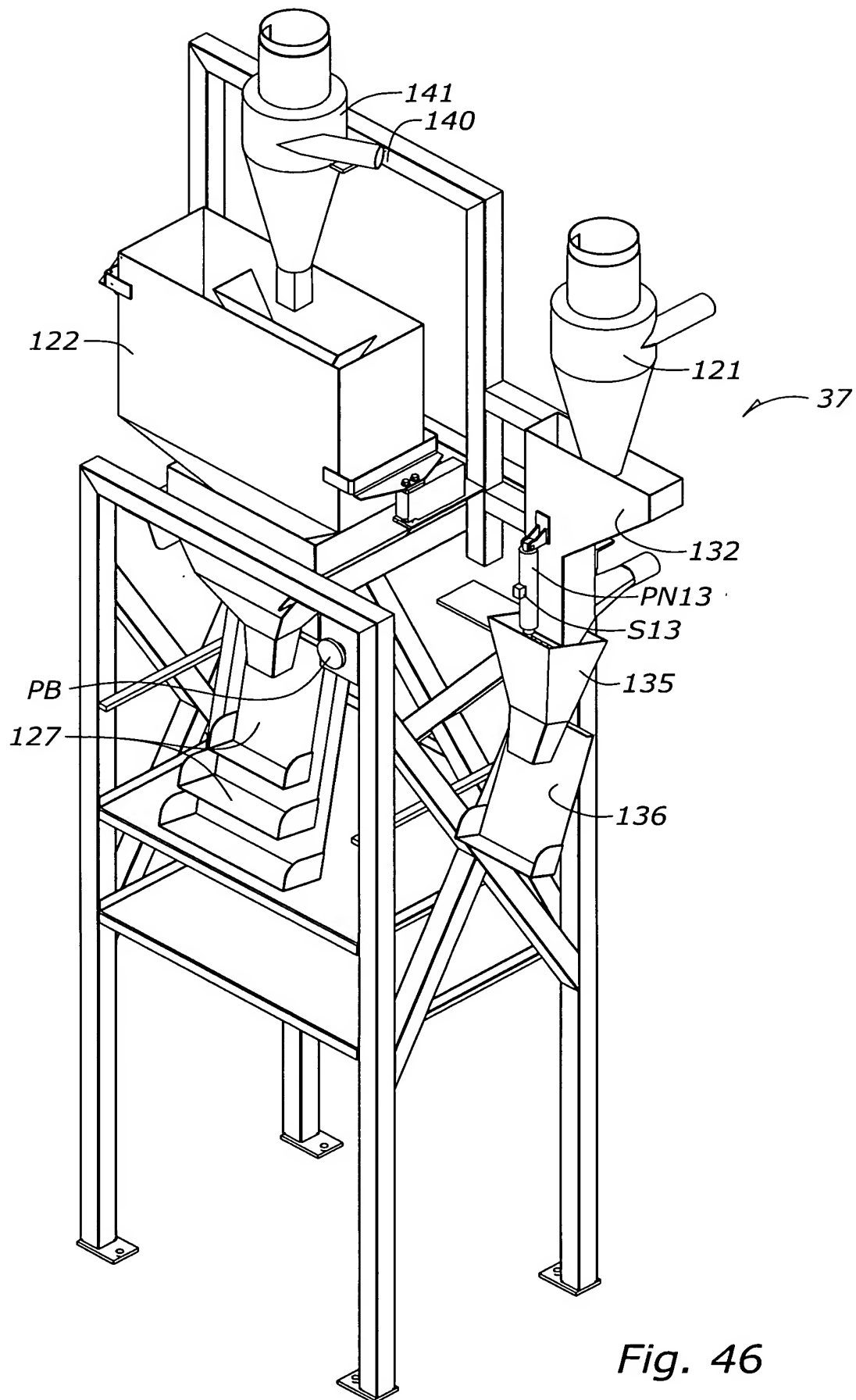
Fig. 43





*Fig. 45*





*Fig. 46*

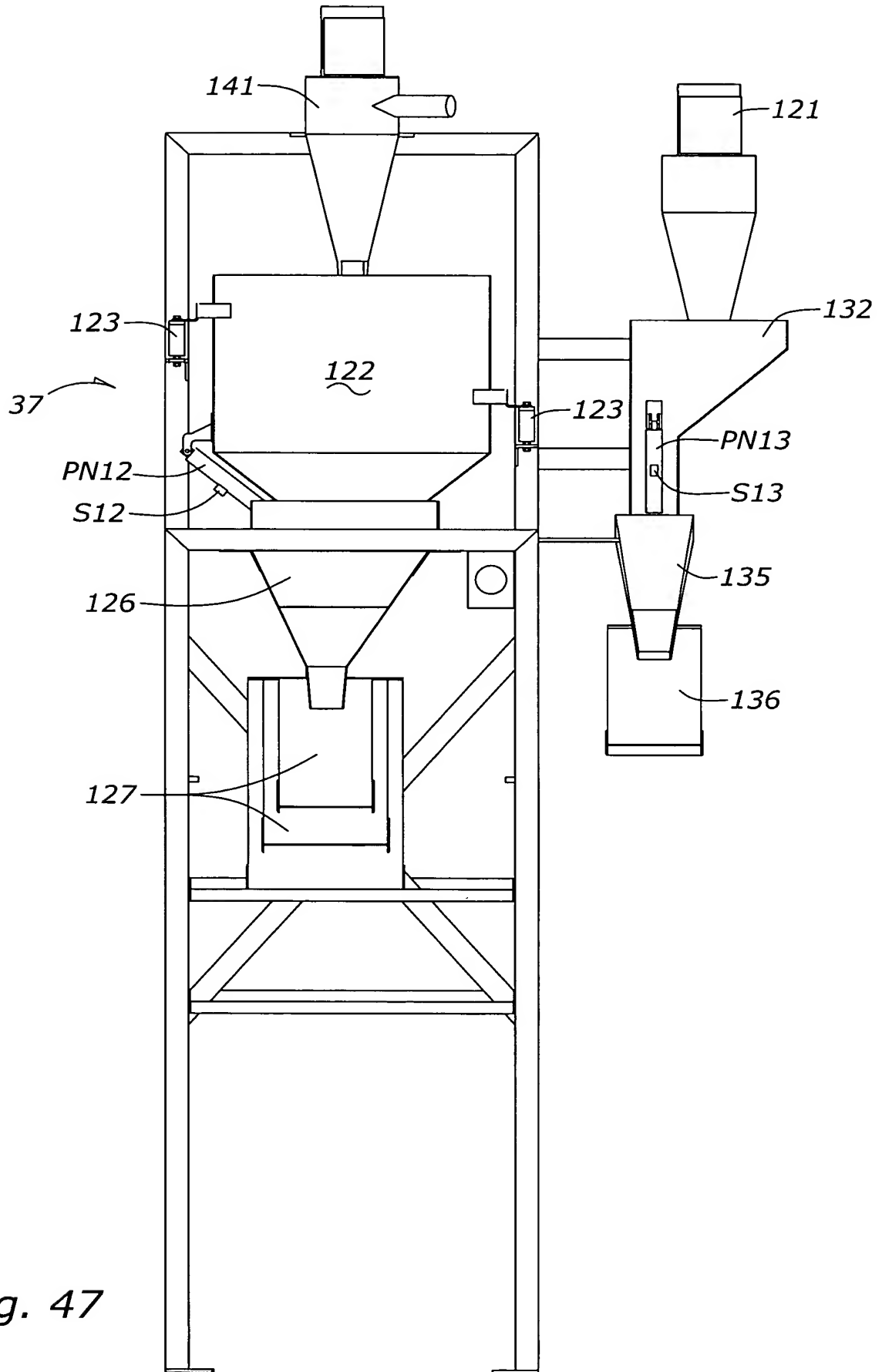
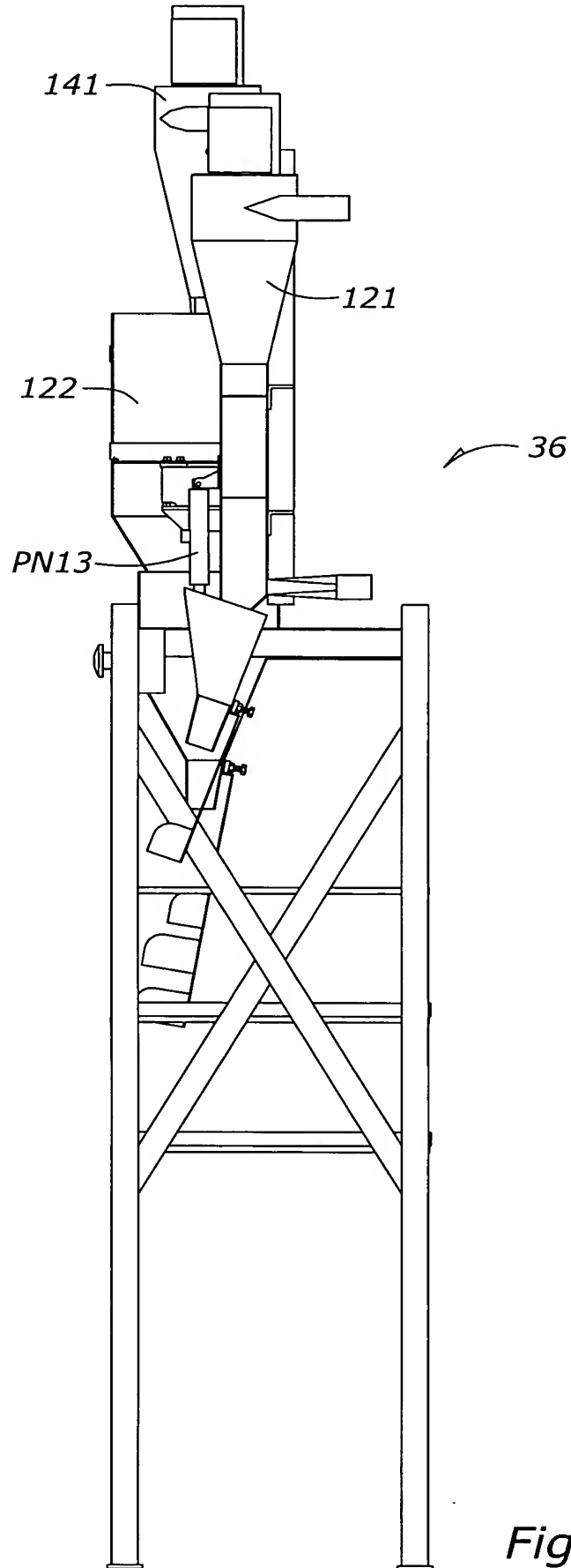
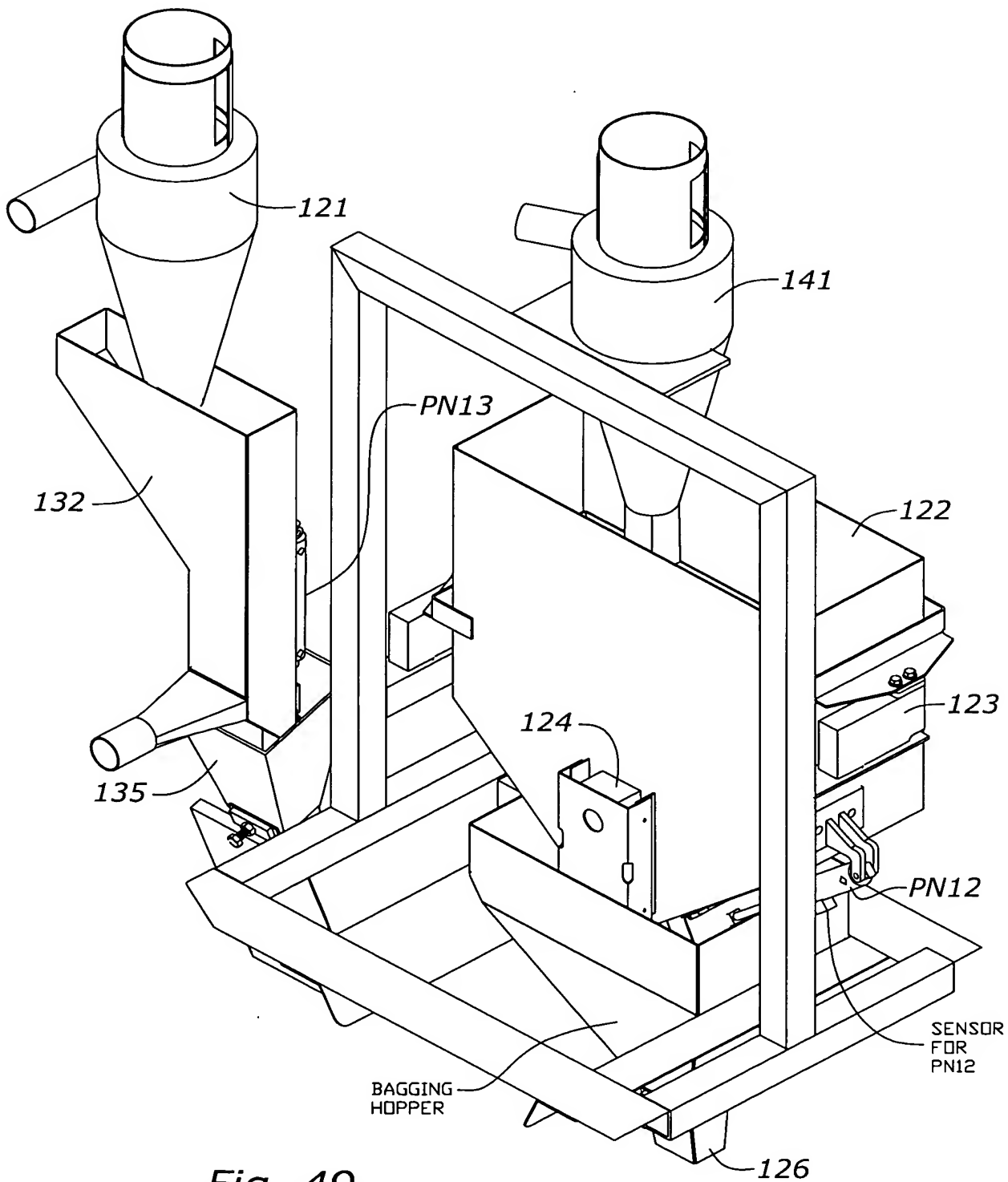


Fig. 47



*Fig. 48*



**Fig. 49**

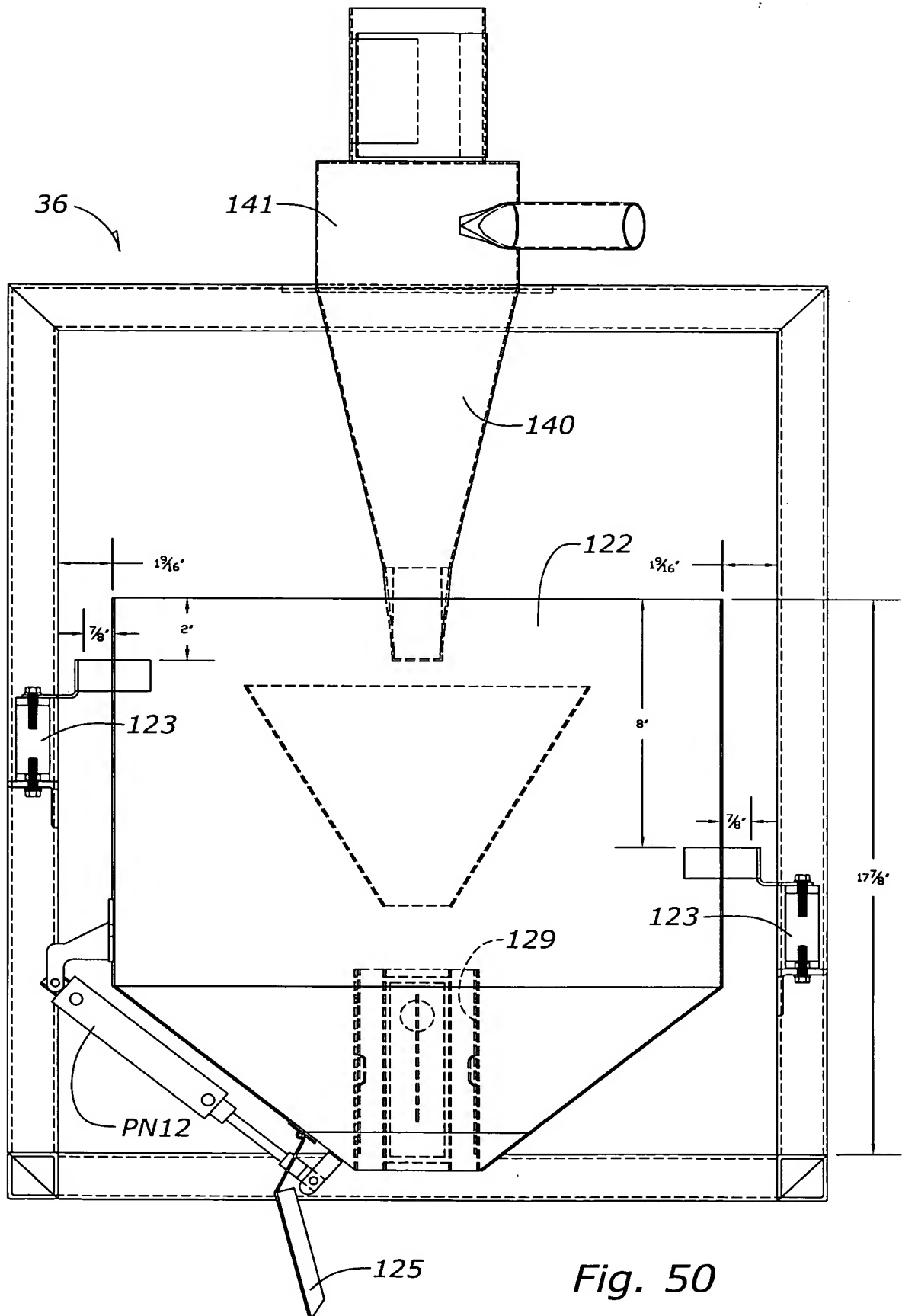
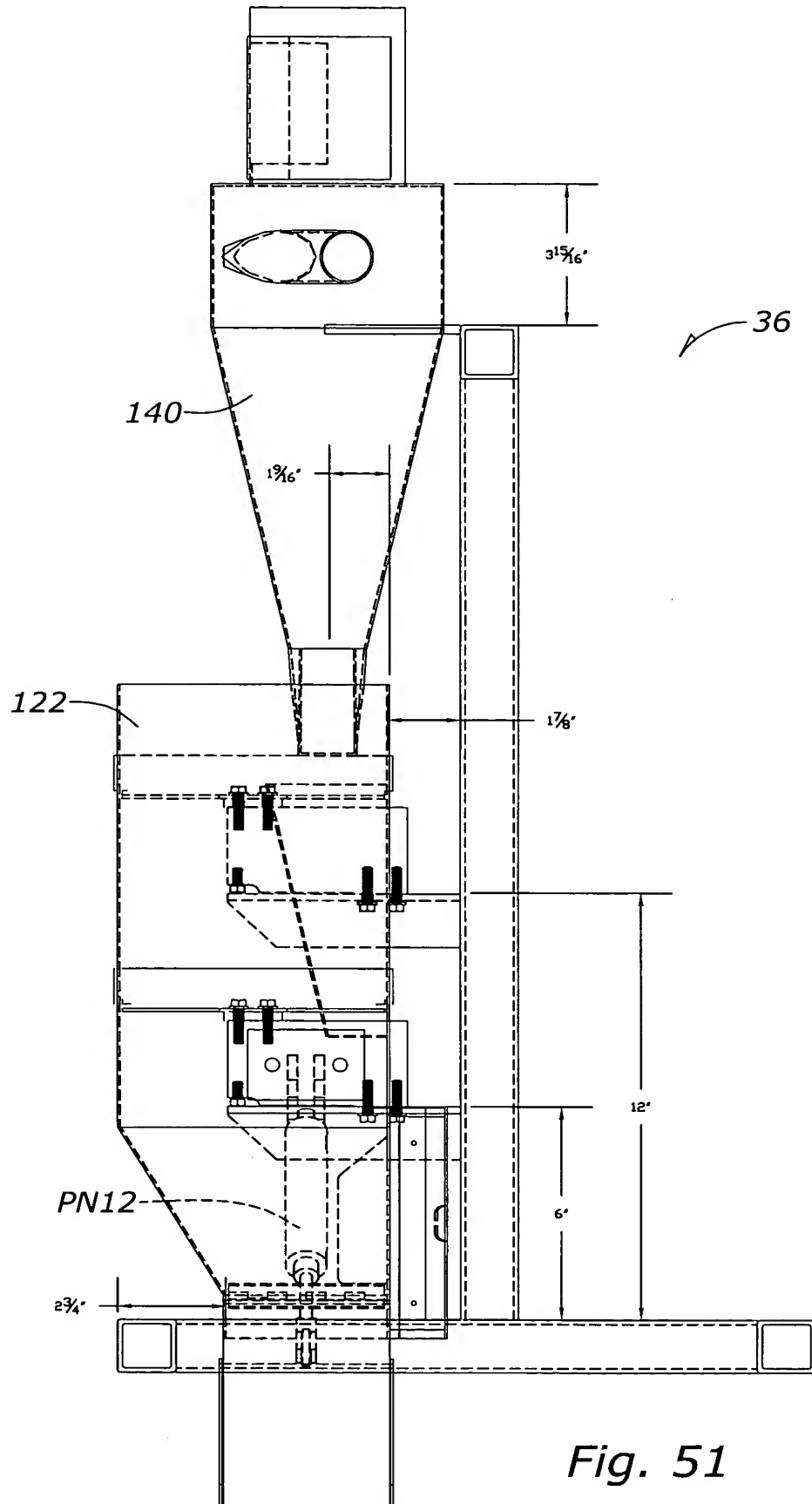
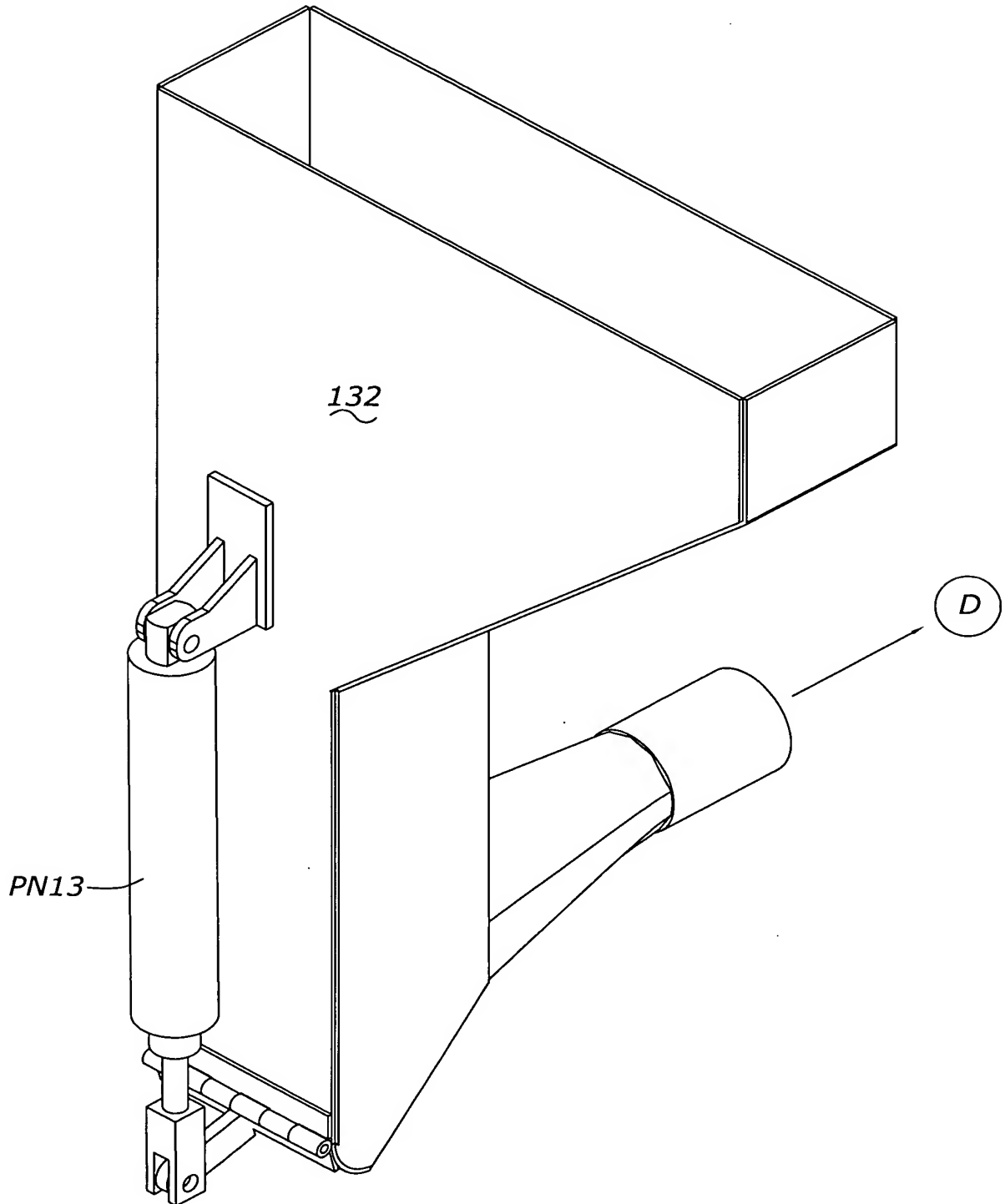


Fig. 50





*Fig. 52*

